



Performance Assessment of Detroit Department of Transportation



Prepared for:
City of Detroit
Office of the Auditor General



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A S S U R A N C E

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1. EXECUTIVE SUMMARY

- 1.1. Scope
- 1.2. Key Findings & Recommendation Scope
 - 1.2.1. *Rider-ship Survey*
 - 1.2.2. *Operating Costs*
 - 1.2.3. *Organization Structure and Management Effectiveness*
 - 1.2.4. *Use of Information Technology*

2. BACKGROUND, RISK ASSESSMENT & METHODOLOGY

- 2.1. Background
- 2.2. Risk Assessment
- 2.3. Methodology

3. PERFORMANCE ASSESSMENT FINDINGS

- 3.1. Overview of Key Performance Indicators (KPI)
- 3.2. Survey of Peer Group's Support Operations
 - 3.2.1. *Summary of Survey's Objectives*
 - 3.2.2. *Summary of Survey's Results*
- 3.3. Purchasing
- 3.4. Review of DDOT Support Operations
 - 3.4.1. *Organization Structure*
 - 3.4.2. *Strategy & Planning*
 - 3.4.3. *Bus Routing & Schedule*
 - 3.4.4. *Purchasing*
 - 3.4.5. *Maintenance*
 - 3.4.6. *Inventory Management*
 - 3.4.7. *Information Technology*
 - 3.4.8. *Management Information & Reporting*
 - 3.4.9. *Human Resource Management*
 - 3.4.10. *Finance and Budgeting*

DDOT RESPONSE – DEPARTMENT OF TRANSPORTATION RESPONSE TO REPORT

- APPENDIX A** – **PEER GROUP KPI & OPERATING EXPENSE COMPARISON**
- APPENDIX B** – **DDOT ORGANIZATION CHART**
- APPENDIX C** – **PEER GROUP SUPPORT OPERATIONS SURVEY**
- APPENDIX D** – **OBSERVATIONS & RECOMMENDATIONS**





1. EXECUTIVE SUMMARY

1.1 Scope

Under the direction of the Auditor General (OAG) of the City of Detroit, KPMG LLP's (KPMG) Management Assurance Services conducted a performance assessment of the Detroit Department of Transportation (DDOT). The objective of this assessment was to identify, at a high diagnostic level, areas where DDOT could improve performance by reducing costs or improving effectiveness of core bus services and/or support operations.

The assessment was conducted in two phases. In the first phase, KPMG interviewed senior management of DDOT and benchmarked key performance indicators against bus operations of nine similar cities (Peer Group). In the second phase, KPMG selected for further assessment certain key support processes that enable DDOT to efficiently and effectively provide transportation services to the citizens of Detroit. These processes included bus maintenance, purchasing, spare parts inventory control, payroll, and the related management information systems and reporting activities. This more detailed assessment of certain processes included further benchmarking of operating expenses and an operational survey of best practices within the Peer Group. Our recommendations from both assessment phases are summarized below.

1.2 Key Findings & Recommendations

In conducting both phases of the performance assessment, KPMG determined that while the agency possesses several important strengths, there are many opportunities for improved performance. Foremost among the agency's strengths is the strong support DDOT receives from the City and the enthusiasm and knowledge of the management team. The high-level commitment and industry knowledge has resulted in an agency that has received substantial financial resources from the City and has effectively applied for capital grants. In addition, DDOT leadership has continued to maintain a relatively young fleet of buses and is in the process of implementing a technology-driven Automatic Vehicle Locator system.

Nevertheless, on many measures, the DDOT falls short of the Peer Group's transportation agencies. While the intent of the DDOT is to provide efficient and effective transportation services, evidence suggests that it provides neither. In general, DDOT runs more buses for fewer people at a greater cost than most of its peers. KPMG's key findings and recommendations are summarized below.



1.2.1 Rider-ship Survey

Key Findings: The agency leadership is addressing one of the major shortcomings by commissioning a comprehensive rider-ship survey. The absence of rider-ship information and the critical review of such information significantly impair the agency's ability to appropriately schedule and route its fleet. Better rider-ship data may allow the agency to more effectively deploy its fleet. This will have a significant impact on costs and revenue particularly if the study results in a reduction in the number of buses deployed in non-peak periods. Depending on the impact such changes may have throughout the department; bringing non-peak service in line with the peer group could result in annual savings of between \$4 and \$12 million.

Recommendations: Complete rider-ship survey as soon as possible and reassess routes and schedules to more effectively and efficiently serve the citizens of Detroit. Also, DDOT could explore the use of alternatives to a fixed-route line-haul system. Several alternatives to traditional bus service exist, such as vanpools, taxi vouchers, and direct response vehicle dispatch, that could be utilized by DDOT to better serve the customer base while reducing the total cost of service.

A timetable for completion and weekly progress reporting could be communicated to top DDOT management on a weekly basis, due to the potential significant impact on the operations and people utilizing the bus services.

1.2.2 Operating Costs

Key Findings: Operating expenses for DDOT continue to increase. From 1998 to 2000, operating expenses went from \$154 million to \$166 million. The 2001 budget and 2002 proposed budgets for DDOT (without PeopleMover amounts) total \$163 million and \$170 million respectively. The significant increase in operating costs are happening at a time when population is decreasing in the City of Detroit and based on the latest Census information (1990), only 11% of the Detroit citizens over 16 years of age utilize bus services for commuting to work.

Many multi-dimensional challenges face DDOT leadership when addressing cost improvements. One major hurdle is the lack of importance placed on cost improvements in the past. Also, significant change management issues are inherent in DDOT. Moreover, due to the significance of potential savings it would appear strong actions could provide funds to be spent elsewhere in DDOT. The savings could be spent on upgrading services and facilities for the citizens of Detroit. Other possibilities could lead to reallocation of funds to other areas of the City, reduced bus fares, or new special ride programs for the disadvantaged.



Based on the average operating cost of DDOT as compared to the Peer Group, DDOT could reduce their annual operating cost by \$40 million if they were able to get to at least the average operating cost per bus of the Peer Group. It should be noted that a decrease in operating expenses results in an approximate 50% net reduction in cost to riders and the General Funds. The full impact of the \$40 million cost reduction to the citizens of Detroit would be reduced by state subsidies. Theoretically, ignoring contractual obligations and requirements of other funding agreements, if DDOT could make the bus routing and scheduling more efficient and reduce their operating cost levels to the average of the Peer Group, the significance of the savings generated could reduce fares needed from the citizens of Detroit. DDOT could in essence provide continuous bus service to Detroit at 50% of the price of current fares without increasing its current operating cost levels.

Recommendations: An overall plan should be developed to revise business processes at DDOT from an efficiency as well as control standpoint. Of primary focus should be the processes related to bus scheduling, vehicle maintenance, purchasing, inventory control and use of information technology. Specific observations and recommendations can be found in the applicable sub-sections of Section 3.3 or Appendix D. In most cases each process should be analyzed and re-engineered for better efficiency. Our impression is that DDOT leadership feel a need for change but just do not have time to concentrate on new and complex initiatives.

1.2.3 Organization Structure & Management Effectiveness

Key Findings: The top management of DDOT was very experienced, enthusiastic, and well intentioned in having the desire to improve the operations at DDOT. The DDOT organization structure and reporting lines are somewhat consistent with the Peer Group cities. However, implementation of some structural and organizational changes will position DDOT for more effective management. For example, as compared to the Peer Group, DDOT's administrative time/cost was considerably lower than the other cities. In this regard, during our interview process and assessments, we noted that top leadership was primarily focused on the day-to-day problems and activities. There appeared to be very little time to develop improvement strategies and manage the operations by delegating to middle management personnel. The knowledge and experience is primarily concentrated in the top leadership of DDOT.

Recommendations: More experienced and skilled professionals need to be strategically added to the current management team to provide top leadership the time to more effectively concentrate on strategy, performance and new initiatives. This would also develop expertise as attrition in the management ranks is eminent.



1.2.4 Use of Information Technology

Key Findings: Throughout our assessments, interviews with management and other personnel, and our observations at DDOT, the usage of information technology as an enabler or tool for the operations was inconsistent. Efficient usage of technology appeared to be challenged by limited training and knowledge of DDOT employees, work-around activities, redundant input of data and lack of management information and reporting. Also, combined with this environment, the City of Detroit is implementing citywide common systems, further challenging DDOT since DDOT uses centralized support functions such as purchasing and accounts payable.

Recommendations: Completion of a more detailed independent assessment of the usage of Information Technology (IT) would benefit DDOT. Based on the results of this assessment, an IT strategic plan should be developed that would address the IT Mission and Objectives, IT Strategy Plan, IT cost/benefit and culture change strategies.



2. Background, Risk Assessment & Methodology

2.1 Background

KPMG was engaged by Office of the Auditor General to assist in the performance of audits as directed by the Auditor General. In directing KPMG to review the Detroit Department of Transportation, the OAG had two goals. First, KPMG was to assess the overall performance of the DDOT. Second, KPMG was to examine specific activities in DDOT that were determined by the overall assessment as being critical to the agency's success.

DDOT provides bus transportation and Para-transit to the City of Detroit. The department also provides limited support services to the City's People Mover. Standard, diesel-powered coaches primarily provide transit services. The agency also utilizes a small fleet of CNG trolleys and a light-rail, electric trolley in the central city, commercial area during the summer and for special events. A contractor provides para-transit services.

The DDOT service area comprises approximately 144 square miles with a population of about one million. The district provided over 189 million passenger miles in 1999 with a fleet of 620 buses. Expenditures in that year were over \$153 million, of which 20% came from passenger fares.

2.2 Risk Assessment

The high-level performance assessment of DDOT looked at the primary function of the agency-fixed route, line-haul bus services. From this high-level assessment, KPMG determined that the maintenance, inventory and procurement processes were three critical areas that could benefit from improvements that would, in turn, have a significant impact on the overall operations of the agency. Therefore, these three areas were examined in greater detail to identify rapid improvement opportunities.



2.3 Methodology

KPMG utilized a modified Comprehensive Business Risk Assessment (CBRA) methodology to assess the overall performance of the agency and to identify the processes that warranted additional review. Components of the CBRA that were utilized include:

- *Review Background Information*—KPMG requested and received a substantial amount of information on the department, including: budgets, financial statements, policy, procedure and training manuals, and standard reports from the information systems.
- *Interview Agency-level Management*—KPMG interviewed 14 members of the senior management team, including the DDOT Interim Director, the Director of Operations, the Director of Administration, the superintendents of Vehicle Maintenance, Plant Maintenance and Scheduling, and the managers of Materials, Information Systems, Quality Assurance and Grants.
- *Benchmarking & Best Practices Survey*—KPMG accessed the National Transportation Database to gather data on the selected peer transit agencies, including: Denver, Chicago, Boston, Minneapolis, Kansas City, Cleveland, Philadelphia, Pittsburgh and Milwaukee.
- *Observations and Inspections*—KPMG toured DDOT facilities including the administrative offices, heavy maintenance facility, two of the three satellite maintenance facilities, and the dispatch office. In addition, OAG staff rode a sample of bus routes.

The review of the Maintenance, Inventory, and Procurement processes included the following additional actions:

- *Reviewed background information on the specific processes*
- *Interviewed key department-level management and staff*
- *Surveyed benchmark agencies on specific policies and procedures affecting maintenance, inventory and purchasing*



3. Performance Assessment Findings

DDOT is a labor-intensive organization, with approximately 70% of cash operating expenditures for labor and fringe benefits. This percentage is slightly lower than the 75% average of the Peer Group cities. Some of the difference is due to DDOT's lower administrative effort in managing the operations. DDOT's largest sources of revenue are state and local funds which combined are 79% of the total revenue in 1999. Its remaining 1999 operating revenues are from the farebox (20% of cash operating expenditures) and other Federal and miscellaneous assistance (1%). The following data from the financial statements summarize the organization's balance sheets and income statements for three years:¹

City of Detroit Transportation Fund Balance Sheets As of June 30, 2000, 1999 and 1998			
	2000	1999	1998
Assets			
Cash	\$ 1,291,563	\$ 1,063,977	\$ 11,797
Investments	379,496	1,130,742	116,041
Accounts receivable	1,415,252	3,002,189	2,755,357
Due from other funds of the City of Detroit	21,204,594	36,810,314	31,281,093
Due from other governmental agencies	13,757,767	2,231,599	1,605,700
Inventories	12,508,737	11,379,757	11,715,235
Prepaid expenses	-----	130,464	241,028
Other current assets	-----	-----	502,428
Total current assets	50,557,409	55,749,042	48,228,679
Property, Plant and Equipment			
Land	4,114,574	4,114,574	4,114,574
Structures and improvements	51,650,574	50,230,231	49,105,972
Buses and equipment	138,306,347	149,587,541	144,714,165
Construction in progress	2,485,055	553,126	1,019,445
	196,556,550	204,485,472	198,954,156
Less Accumulated depreciation	(119,525,276)	(122,918,015)	(111,092,708)
Net property, plant and equipment	77,031,274	81,567,457	87,861,448
Other Assets			
Long-term disability reserve fund	650,000	650,000	650,000
Total assets	\$ 128,238,683	\$ 137,966,499	\$ 136,740,127
Liabilities and Equity			
Current Liabilities			
Accounts payable	\$ 16,450,151	\$ 10,860,584	\$ 8,124,291
Due to other funds of the City of Detroit	16,380,051	20,155,185	5,060,538
Due to other governmental agencies	-----	-----	478,296
Accrued salaried and wages	1,595,907	3,880,450	2,681,820
Public and workers' compensation liability	6,510,168	8,149,546	21,257,336
Accrued compensated absences	3,393,895	2,957,345	3,005,477
Long-term disability liability	451,991	560,053	511,896
Deferred revenue	1,216,245	249,089	487,135
Total current liability	45,998,408	46,812,252	41,606,789
Long-Term Liabilities			
Public and workers' compensation liability	25,550,635	26,706,255	20,387,366
Accrued compensated absences, less current portion	732,440	691,280	611,939
Long-term disability liability	1,813,934	2,937,154	2,584,506
Total long-term liabilities	28,097,009	30,334,689	23,583,811
Equity			
Contributed capital	72,472,415	76,680,173	82,044,740
Accumulated deficit	(18,329,149)	(15,860,615)	(10,495,213)
Total equity	54,143,266	60,819,558	71,549,527
Total liabilities & equity	\$ 128,238,683	\$ 137,966,499	\$ 136,740,127

¹ The balance sheet presents the memorandum totals for all funds, including the General Fixed Assets, while the income statement is presented for Governmental Fund Types.



City of Detroit Transportation Fund Statements of Revenues, Expenses and Changes in Equity For the Years Ended June 30, 2000, 1999 and 1998			
	2000	1999	1998
Operating Revenues	\$ 29,010,669	\$ 31,358,999	\$ 31,506,715
Operating Expenses:			
Transportation	43,998,522	44,120,735	41,168,339
Maintenance	33,859,025	31,819,295	30,702,291
Motor fuel and servicing	22,038,414	18,439,109	15,848,649
Pension and fringe benefits	35,449,270	37,163,687	33,791,585
Depreciation	12,162,691	12,268,823	12,464,567
Administrative and general	18,345,575	16,738,454	19,667,414
Total operating expenses	165,853,497	160,550,103	153,642,845
Operating loss	(136,842,828)	(129,191,104)	(122,136,130)
Nonoperating Income (Expense):			
Federal and state contributions	69,004,749	61,364,671	60,137,093
Restricted federal and state grants	1,958,718	1,612,308	1,924,882
Expenditures applicable to restricted Federal and state grants	(1,958,718)	(1,612,308)	(1,924,882)
Earnings on investments	120,751	107,701	236,202
Total nonoperating income, net	69,125,500	61,472,372	60,373,295
Net loss before operating transfers	(67,717,328)	(67,718,732)	(61,762,835)
Operating Transfers from General Fund, City of Detroit	53,422,845	51,005,238	52,991,259
Net Loss	(14,294,483)	(16,713,494)	(8,771,576)
Add depreciation on fixed assets acquired by contributed capital	11,825,949	11,348,092	11,087,667
Increase in Accumulated Deficit	(2,468,534)	(5,364,402)	2,316,091
Accumulated Deficit, beginning of year	(15,860,615)	(10,495,213)	(12,811,304)
Accumulated Deficit, end of year	(18,329,149)	(15,860,615)	(10,495,213)
Contributed capital, beginning of year	76,680,173	82,044,740	89,090,027
Additions	7,618,191	5,983,525	4,042,380
Less-Depreciation on fixed assets acquired by contributed capital	(11,825,949)	(11,348,092)	(11,087,667)
Contributed Capital, end of year	72,472,415	76,680,173	82,044,740
Total equity, end of year	\$54,143,266	\$60,819,558	\$71,549,527

The above financial statements show the increase and magnitude of costs at DDOT. The statements were used to help select certain key performance indicators in the following Peer Group comparisons.



3.1 Overview of Key Performance Indicators

The following pages contain charts showing DDOT's position relative to a set of agreed-upon non-Michigan Peer Group cities in each of twelve key performance indicators, and relative to the four cities closest in size to DDOT (first four cities listed below). The cities were selected jointly with the OAG based on their size, geographic location, climate and other characteristics that made them appropriate cities to benchmark with DDOT.

The data is extracted from the National Transit Database for 1999. Appendix A contains additional, more detailed indicators and supporting data. Data are presented in the form of thermometer charts: for each of the indicators presented here, the highest and lowest ranked systems are named with the indicator value, establishing the thermometer scale. DDOT's value is listed and its relative position is graphically presented by the green line on the thermometer. The position of each of the remaining systems is represented by a temperature marking (a finer horizontal line) on the chart. In each case the systems shown are:

- Milwaukee
- Cleveland
- Kansas City
- Pittsburgh
- Chicago
- Boston
- Minneapolis
- Philadelphia
- Denver

In each case, the first four cities are named with the figures included; the other cities are shown in the proportionate position on the chart as unlabelled horizontal lines.

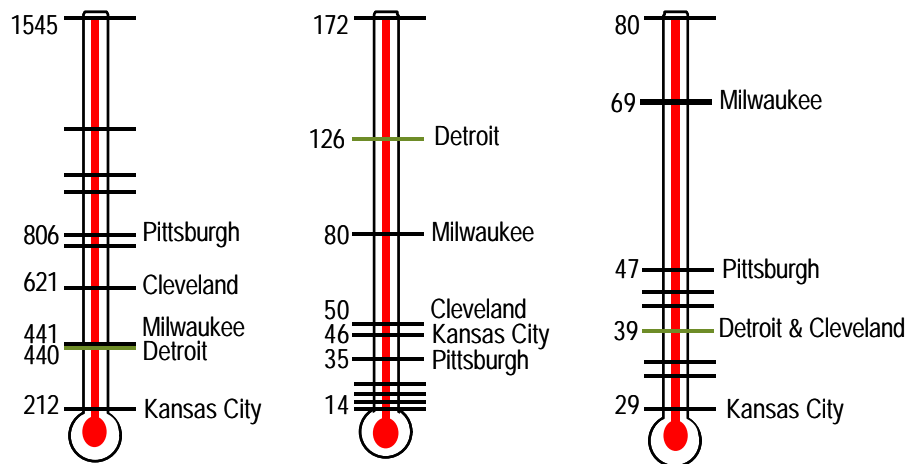
The first chart shows descriptive statistics and service level indicators among the five closely sized systems. DDOT is positioned near the bottom with 440 peak buses in 1999, while Kansas City is the smallest of the group at 212. The second thermometer illustrates a measure of service density: annual vehicle miles per square mile of service area. Pittsburgh is the lowest of the four cities closest in size to DDOT at 35,115 miles operated annually per square mile of service area. DDOT provides the second most dense service. The final graph shows a rate of service usage labeled total passengers or "rides" per capita. This measure of the frequency of transit usage is sometimes called riding habit.



Commensurate with the density of service offered, Detroit is tied with Cleveland for the fourth lowest of the group with 39 rides taken per year, per person in the service area. Additional descriptive statistics for the systems are presented in Appendix A.

These service level indicators are primarily descriptive in nature, are determined by policy and geography, and are not heavily influenced by the efficiency or effectiveness of the system.

Key Performance Indicators: Service Level



of Peak Buses

The number of buses in peak weekday service (the greater of the number in the a.m. or p.m. rush hour) is a measure of the size of the system.

Vehicle Miles (000's)/Square Miles

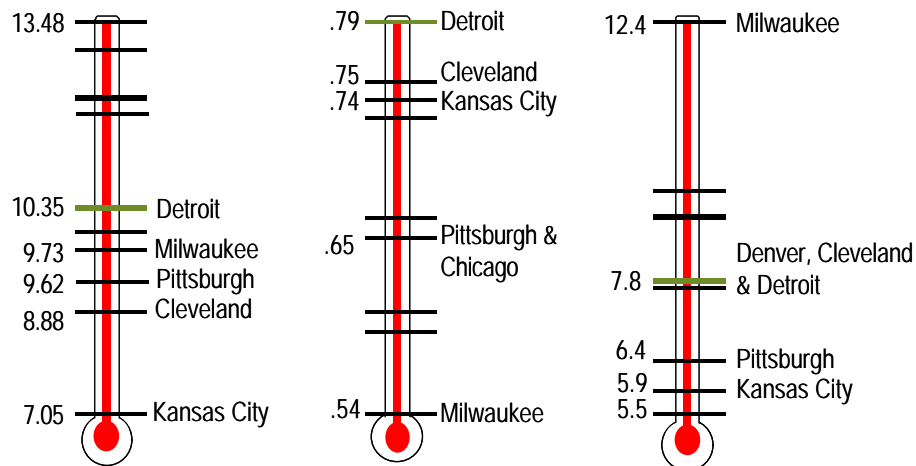
The ratio of annual vehicle miles operated to square miles of service area is a measure of the density of service.

Rides/Capital

The annual ridership divided by the population ("riding habit") measures frequency of use of the service.

The next group of indicators measure overall performance. Average bus occupancy is computed as the number of passenger-miles carried divided by the number of vehicle miles operated. DDOT is in the middle of the group with an average of 10.35 persons on board the buses, which is the highest of the closely related Peer Group cities. The second thermometer, total operating expense per mile, ranks Detroit as having one of the highest operating expenses per mile. The last thermometer in this group is one measure of service reliability and it reflects the average age of the buses. DDOT continues to maintain a relatively young fleet of buses. While this performance indicator is commendable, the next group of indicators (operational efficiency) show that DDOT's operational costs far exceed most of those of the Peer Group. The contradiction between the level of operational cost and the age of the fleets can be the result of poor business processes supporting the bus operations.

Key Performance Indicators: Overall Performance



Bus Occupancy

Bus occupancy (computed as passenger-miles divided by vehicle miles) measures the average number of passengers on board.

Cost/Mile

Operating cost divided by miles.

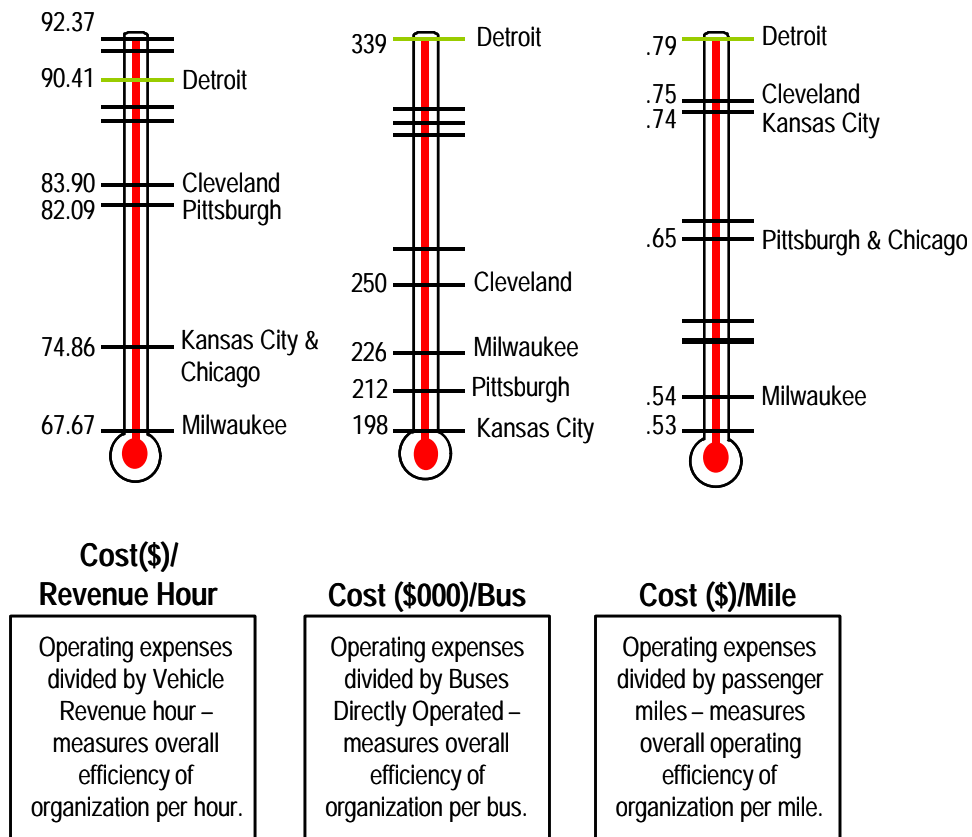
Average Age of Buses

Average age of buses reported by transit authority.



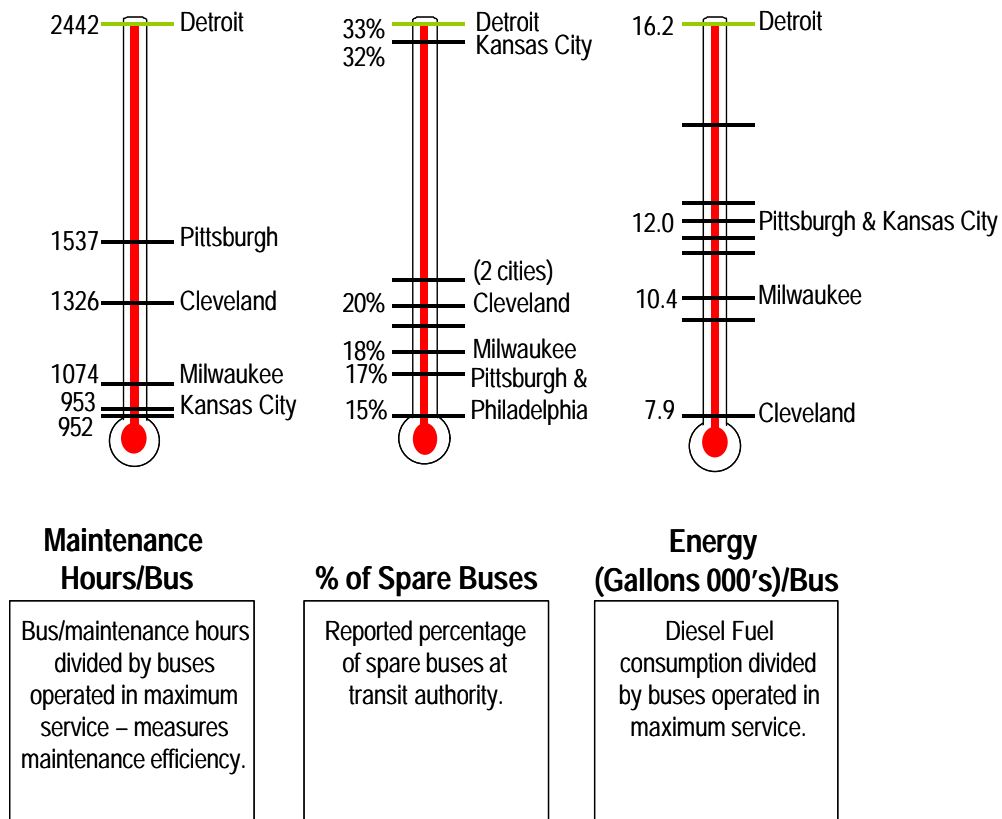
The last set of six thermometers present measures of operational efficiency. We chose three variations of measuring cost with the first three thermometers. All three KPI's demonstrate DDOT's high cost of operations. By looking at costs as compared to bus hours, number of buses and bus miles, it pinpoints that this is an area requiring more attention at DDOT. For example, the first measure, total operating expense per vehicle hour, ranks DDOT as the third most expensive system at \$90 per hour.

Key Performance Indicators: Operational Efficiency



The last three thermometers are three examples of specific areas that need the attention of DDOT. While each of these thermometers display different dimensions of cost, they all detail further where there could be some improvements made. Maintenance hours per bus measure the efficiency of the Maintenance Department. This correlates strongly to the number of spare buses DDOT maintains versus its Peer Group. Only one city came close to the level of spare buses that DDOT reported. A high percentage of spare buses can many times cause significantly more operational expenses. The last thermometer measures energy consumed (diesel fuel) per bus. This appears to be a logical result of strong coverage of the service area. The rider-ship survey being initiated by DDOT leadership should help determine if the extra buses, diesel fuel and the higher operational costs in total are justified.

Key Performance Indicators: Operational Efficiency





Overall, the indicators present objective data about DDOT that demonstrate that it is a system characterized by relatively high density due to geography and policy decisions concerning service levels. Its core functions of transportation and maintenance are not efficient and total operating expense is very unfavorable as compared to the Peer Group, suggesting the possibility of room for improvement in the key business processes.

Our assessments of the purchasing, maintenance and inventory management are detailed in Appendix D and in Section 3.3 of this report.

Summary Comments on Key Performance Indicators (KPI's)

The tables in Appendix A represent information from the National Transportation Database. The Federal transit Administration annually collects operating statistics from all transit systems. The most recent Peer Group KPI's available in the database are from the 1999 fiscal year. The operating expense tables (pages 6 thru 18 of Appendix A) represent 1998 data, which was the most current data readily available.

The DDOT service area is characterized by its relative population density. With approximately 7,400 persons per square mile, DDOT ranks second behind Chicago in terms of population density. Yet, in terms of the number of annual passenger miles and number of unlinked trips per person, DDOT is far removed from the Chicago experience ranking sixth in both measures (see Appendix A). The relatively low demand for services may reflect the relative ease of traveling by car in the Detroit area compared to Chicago, Boston, Philadelphia, Pittsburgh and Cleveland. Also, the low demand could reflect the impact of the reliability and quality of the bus services.

The size of the fleet of vehicles used by DDOT to provide service shows two interesting characteristics. First, the maximum number of vehicles available for service, the maximum number of vehicles operated at peak times, and the number of vehicles used to meet the base period requirement are all above the 10-city average when examined on a vehicle per passenger mile basis. DDOT buses seem to drive a relatively high number of miles for the given passenger volume. This is reflected in the relatively low number of passenger miles per directional mile and revenue hour.

Second, DDOT has a relatively high ratio of Vehicles Available for Maximum Service (VAMS) to Vehicles Operated in Maximum Service (VOMS) while having a low ratio of VOMS to Base Period Requirement (BPR). DDOT has approximately 1.3 buses available for service for every bus operating during maximum service. The average spare ratio for the Peer Group cities is 1.2. Research indicates that with modern maintenance procedures, the spare ratio could be improved still further. Moreover, DDOT is operating only 1.5 vehicles during peak periods for every vehicle required during the base period. The Peer Group average is nearly 2.5 vehicles during the peak period.



Assuming that the number of buses required for maximum service is appropriate, reducing the number of vehicles available for service to the Peer Group average would reduce DDOT's fleet by 36 buses. More importantly, bringing the ratio of peak service to base requirements to the average would reduce the base period requirement by 115 vehicles.

Additional efficiencies in the deployment of the fleet could be gained by increasing the average speed attained by the fleet. While many factors affect the average speed of buses, including the frequency of stops and road conditions, the DDOT fleet operates at an average speed that is over 15% slower than the average speed for the Peer Group cities. Increasing the average speed of the fleet could reduce the need for additional buses.

Adversely affecting the DDOT's performance is the relatively high rate of vehicle failures. DDOT had 17.5 major failures with passengers transferred per vehicle. This is nearly three times the average rate of failure and over 50% greater than the rate in Chicago.

The high rate of vehicle usage is also reflected in the amount of maintenance required by the fleet. Labor hours for inspection and maintenance per VOMS for DDOT were 2,442. This is almost 200% of the Peer Group average of 1,243. DDOT non-vehicle maintenance hours per VOMS exceeded the Peer Group average by more than 75%. Only in the area of administration does DDOT fall below the average, having but 503 hours per VOMS compared to the Peer Group average of over 700 hours.

3.2 Survey of Peer Group's Support Operations

Based on our risk assessment and interviews with key management at DDOT and our direction from the OAG, we performed a high level review of four business processes that impact the operational efficiency of DDOT. We reviewed the DDOT processes for bus scheduling, purchasing goods and services, parts inventory management and bus maintenance. Following these reviews, we surveyed the Peer Group cities as to certain practices in the process areas mentioned above. The detailed overall survey comparison can be found in Appendix C. Our summary of the survey objectives and results are provided below.

3.2.1 Summary of Survey's Objectives

The objective of the survey was to contact the Peer Group transit authorities and compare certain practices within the selected business processes for bus operations. This benchmarking activity would then provide some best practices to share with DDOT and help to provide additional understanding of KPI's of the Peer Group.



3.2.2 Summary of Survey Results

The Peer Group Support Operations Survey resulted in the following best practices. These practices need to be further reviewed with DDOT for potential applicability and potential implementation at DDOT if not currently in place.

- Pittsburgh has a foremen exchange program with Washington DC in which selected foremen on a quarterly basis are exchanged between the two entities to increase knowledge of best practices in transit operations.
- Philadelphia has a cyclical preventative maintenance program that concludes with a major scheduled maintenance.
- Many of the transit authorities had restricted access procedures in place for storerooms and reasons for differences are to be explained. To facilitate this process, there are many performance metrics (i.e. labor standards for work performed) that are pushed down to the employee level to determine if they are performing at an acceptable rate.
- Some of the transit agencies have implemented a work order process that allows for the work order to be bar scanned. This allows for management to know the status of a project, mechanic assigned, duration, and materials used in real time.
- Cleveland has a procedure in place allowing for their fuel supplier to access their fuel inventory records, thereby allowing them to monitor fuel levels and deliver fuel as needed.
- Philadelphia and Denver use structured cycle counting procedures that allow them to reconcile inventory levels in a very optimal and efficient manner. Both try to maintain inventory levels that are at a pre-determined dollar amount per bus.
- Minneapolis uses a bar code scanning process to track inventory movements. As goods are received from the vendor, a bar code is printed out and attached to the material. All storerooms have scanners that allow them to scan the items into inventory.
- All of the transit agencies have some kind a parts cross-reference procedure in place for inventory ordering, control and disbursement. Most receive a parts list from the bus manufacturer upon purchasing a bus and perform a parts cross-referencing exercise up front prior to receipt of the new buses. Milwaukee goes a step further and offers a cash bonus to all employees as they find and report inventory duplications.



- The City of Denver has implemented a complex vendor-rating program that helps them to monitor the performance of their vendors. An example of the criteria monitored are number of purchase order items versus number of items received correct, on time, with correct documentation, correct quantity, acceptable quality, and correct price. Vendors are then assigned a numerical rating (1-100) based on their performance. This number is then factored when determining which vendor they want to purchase from. In addition, it will also affect the price Denver is willing to pay. For example, for each 2% difference between vendors, they are willing to pay 1% more or less, depending on which way ratings are being analyzed. Denver feels that this has improved the quality of their vendor performance significantly.
- Milwaukee utilizes a “bid service” that ensures that public bids are made public as required. This is a free service to them. Minimal costs incurred by the supplier (< \$100/year) to subscribe to this service.

3.3 Review of DDOT Support Operations

Below we provide the positive activities and actions noted at DDOT as well as the observations and findings noted throughout our review of the support operations as well as some other areas where items of interest were noted.

Assessment Commendations

In reviewing the overall performance of the DDOT, we observed a number of positive developments that bode well for the agency. These include the following:

- *Young fleet of coaches*—With the recent purchase of new buses, DDOT will further reduce the average age of its relatively young fleet.
- *Adequate coach fleet for area covered and citizens served*—The DDOT fleet, in terms of Vehicles available for Maximum Service, Vehicles Operated in Maximum Service and Base Period Requirements, exceeds the average of the peer group.
- *Top level (Mayor) support and commitment*—The Mayor has taken an active interest in public transportation, with the appointment of new management and continuing financial resources.
- *Personnel have a long-tenure / history with the Department*—Many of the persons interviewed have had long and distinguished careers in public transportation that is reflected in their pride and “can-do” attitude.
- *Grant development efforts have been productive*—Although understaffed, the grant development function has been productive and vigilant in identifying grant opportunities.



- *New operational technology systems have been acquired and are being implemented*—The Department has identified a vendor and received City approval to implement an Automatic Vehicle Locator system that could have a substantial positive impact of the delivery and cost of services.
- *Audited financial statements - unqualified opinion*—The department has received an unqualified opinion from the external auditors indicating that the financial controls and reporting are adequate to fairly represent the agency's financial condition.
- *Understanding and awareness of compliance requirements*—The experience of the management team is reflected in their awareness of federal, State and local regulations affecting the agency.

Assessment Findings & Recommendations

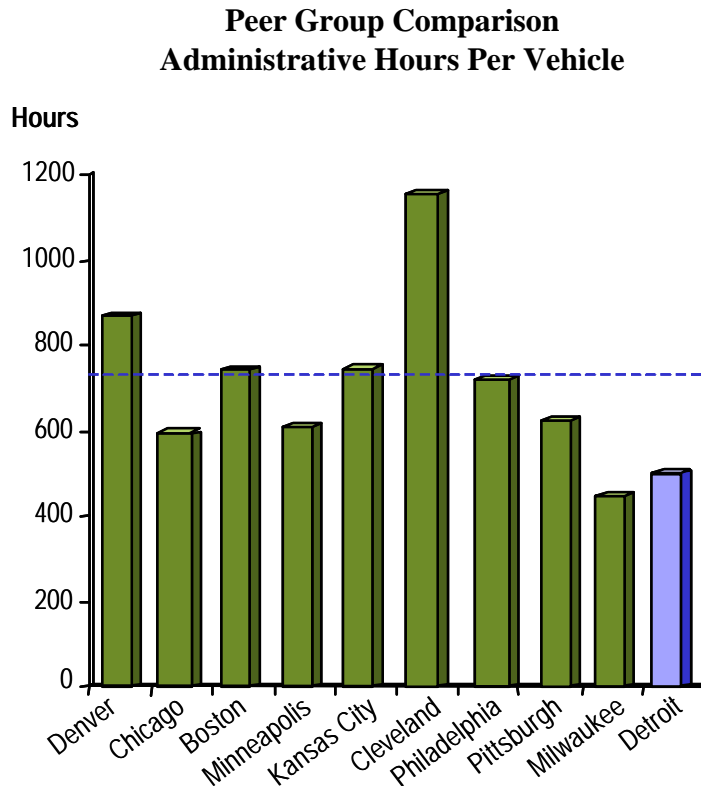
DDOT faces considerable obstacles in the provision of efficient and effective public transportation services. Perhaps because of the dearth of information on rider-ship needs, the agency appears to run too many vehicles for too few passengers at too great of an expense. This condition is reflected in the relatively low percentage of costs covered by fare box receipts and the relatively high operating costs.

Nearly every function examined at the agency could benefit from change. The new leadership is aware of many of the agency's shortcomings. Yet, seizing upon the opportunities for change may be difficult because there is little time available for planning. The agency is so focused on daily operations that it is under-administered, foregoing planning and analysis.

The following sections present the more significant observations and recommendations from the overall performance assessment. A more detailed listing is in Appendix D, where a priority level, recommendation and benefits component is listed for each observation.

3.3.1 Organization Structure

A brief review of the organization structure was performed and is depicted at a high level in Appendix B. Also, below is a comparison of administrative hours per vehicle within the Peer Group. As you can see DDOT is relatively low as compared to the other transit authorities.



The organization needs to benefit from stable leadership and rationalization of the functions within the department. Past instability and the assignment of responsibilities based on convenience or personality crippled the agency in any effort to improve. The following recommendations are provided for your review. Further review by KPMG was not within the scope of this engagement.

- Agency needs confirmed appointment of an executive director to stabilize leadership.
- Management needs to invest in building cooperative, coordinated leadership team.

- Additional experienced professionals need to be strategically placed in the organization to provide additional management of the departments, in order to free up time of the top management to concentrate on strategic and high level operational issues and improvements.
- Reporting lines should be consistent with budgetary responsibility. For example, the Quality Assurance manager reports to the Director of DDOT yet his budget is controlled by someone else in the organization.
- Functional responsibilities need to be more clearly aligned and enabled throughout the organization structure. In particular, attention should be paid to the internal control structure and reporting responsibilities of the following areas:
 - *Capital acquisition activities*—delineation of responsibilities for operations, quality assurance, maintenance, planning and procurement to reduce burden and improve coordination.
 - *Stockroom activity*—delineation of responsibilities between maintenance and procurement to improve inventory controls and availability.
 - *Maintenance of trolleys and communication systems*—delineation of responsibilities between facilities, maintenance and information systems to improve responsiveness and planning.
 - *Accounts Payable review*—delineation of responsibilities of user department, accounting, audit, quality assurance and procurement in payment process to expedite payment with appropriate controls.

3.3.2 Strategy & Planning

The effort required to simply get the targeted number of buses on the street daily and historic under-investment in administration has resulted in inadequate development of strategies and plans. This weakness is evidenced in the planning for CNG trolleys, voice and data communications, new coaches and data processing systems, as well as, routing and scheduling.

- The Agency needs a strategic long-term operational business plan to maximize the City's return on transit investment.
- Leadership needs meaningful management reports that quickly convey progress on key performance indicators, perhaps real-time information on passenger loads and vehicle speed.
- Managers need clearly defined, measurable goals to assess progress toward accomplishing tasks that are meaningful to the agency's success.



3.3.3 Bus Routing & Scheduling

Data indicates that DDOT provides at least an adequate amount of service, if not excessive, yet there remains a perception that the service is inadequate. Fundamentally, this points to deficiencies in the routing and scheduling of the fleet.

- Routine and on-going rider-ship data is not obtained or tracked to enable meaningful evaluation of stops and routes.
- Service delivery information is not available to customer service representatives to advise potential customers of any disruptions.
- Services do not appear to be integrated with other agencies and modes of transportation leading to a duplication of service and underutilization of assets.

We provide our observations above; however, this area was not within the scope of this engagement. Additionally, there were actions currently being taken by DDOT management to commission a ridership survey and implementation of a scheduling system and full time scheduler(s).

3.3.4 Purchasing

Procurement is a critical support process for the delivery of services to the public. Untimely delivery, inappropriate goods and services, and inflated costs conspire to undermine the public trust and the ability of divisions within DDOT to complete their tasks. Currently, procurement is seen more as an obstacle than a partner.

- The department is perceived by other internal departments as not being customer focused, as practices and focus tends to be tactical prevention of potential abuses rather than strategic facilitation of appropriate purchases.
- The process is inefficient and slow due to redundant data processing activities and over-application of federal procurement rules, thereby causing operational problems and control gaps throughout the organization.
- Systems interface issue between DDOT and the City results in significant duplication of effort for no apparent benefit to DDOT, as data maintained in the DDOT specific system is not always used to the fullest extent.
- Application of more restrictive federal transit procurement requirements are applied to all purchases even when federal transit funds are not involved, preventing the use of currently available City and State contracts.



3.3.5 Maintenance

Outside of actual vehicle operations, maintenance comprises the most vital and costliest function at DDOT. Almost all functions at DDOT conspire to increase the cost of maintenance. From the lack of planning, to part availability problems, to vehicle usage patterns, DDOT compromises its ability to adequately maintain the vehicle fleet in a cost effective manner. Also, to compound the problem, the maintenance function itself did not appear to be efficient or effective.

- Fundamentally, DDOT has inadequate information technology to effectively manage maintenance activity. This deficiency is evidenced in many ways, including:
 - Cost and frequency of scheduled maintenance is not tracked or monitored
 - Warranty recovery is not realized on parts previously replaced
 - No repair incident tracking to improve vendor's quality of parts/service
 - Maintenance productivity is not monitored against acceptable industry standards nor are standard times updated in a timely manner
- DDOT is primarily reactive in its approach to maintenance impairing the implementation of a more cost effective and efficient proactive preventative maintenance program.
- Old coaches determined to be only good for spare parts are kept parked on the lot causing a perception that coaches are available, but not utilized by the Department.
- Retirement of used parts is not controlled raising the potential for inappropriate part replacement.
- High base period requirements for coaches creates specific inefficiencies, such as the following:
 - Vehicles are returned to service without all noted maintenance needs being completed, which ensures the return of the coach for additional maintenance
 - The ratio of maintenance personnel to coaches is high compared to other transit organizations
 - Maintenance overtime is high as shops work around the clock to meet the schedule



- Facilities are in need of repair and/or replacement as major support systems such as fluid delivery, hoists and air quality controls are in a state of disrepair that adversely impacts service delivery.

3.3.6 Inventory Management

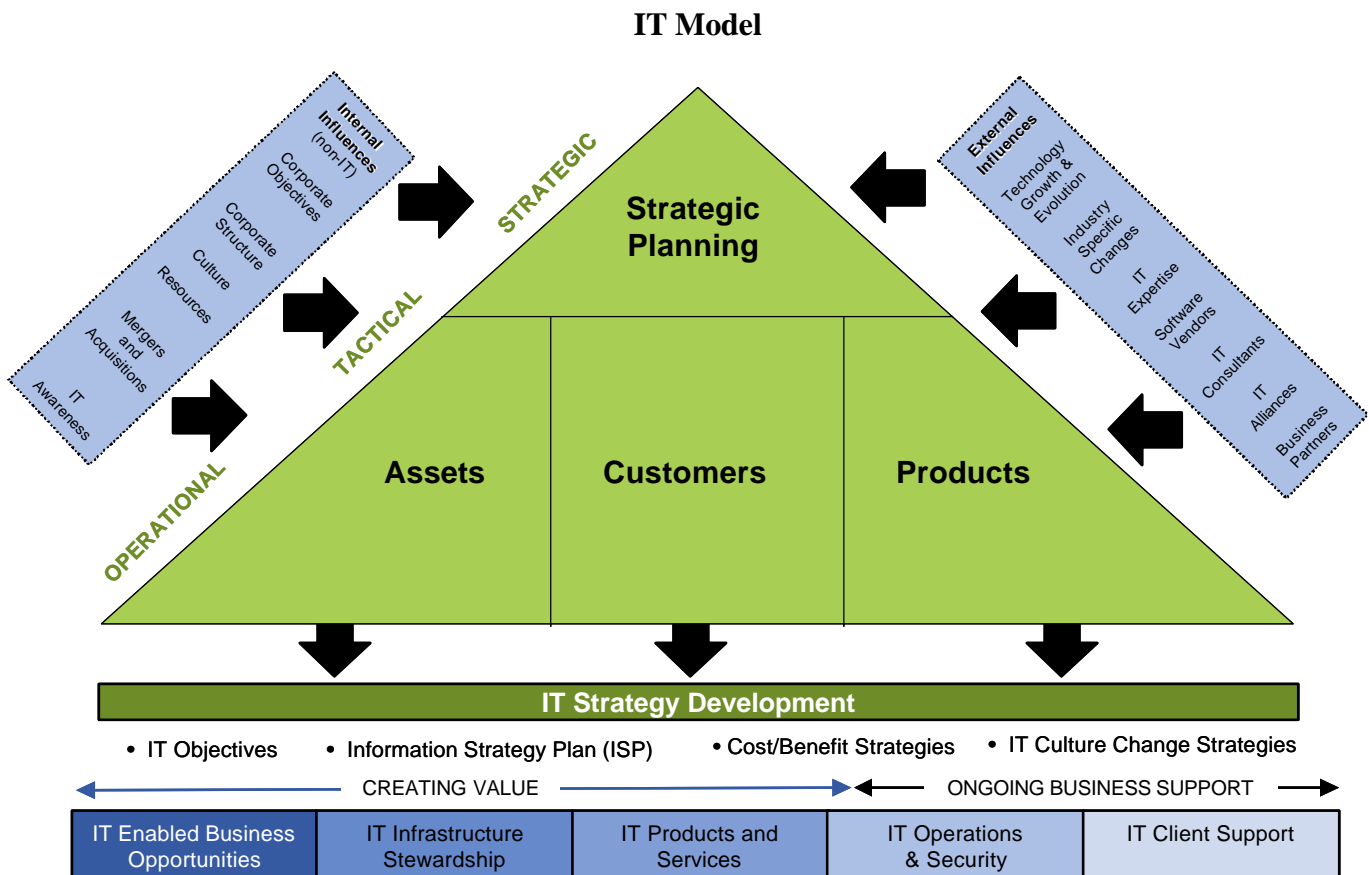
The gaps created by the absence of planning and an ineffective procurement function are evidenced in the inadequacies of DDOT inventory management. DDOT inventories are at once excessive and inadequate, as the storerooms have too many obsolete parts and too few of the required parts. Inventory shrinkage and excess investment are creating a multi-million dollar drain on the system.

- New buses put into service with no supply of spare parts for maintenance—given DDOT dispatching practices and usage patterns as there is a high degree of certainty that these coaches will need repair early in their service lives.
- Inventory access, location and usage is not adequately controlled and accounted for, resulting in parts being out of stock when the system shows inventory on hand.
- Inventory reorder points are not working within the system, further exacerbating part availability problems.
- Significant turnover in the stockrooms contributes to lack of control and responsiveness.
- Monthly inventory cycle counts average a 50% accuracy level.
- Stockroom personnel do not report to the operational managers they are serving, further diminishing any incentive to provide adequate services.
- Used parts are not matched with new parts to insure all part usage is appropriate, also preventing analysis of part performance.
- There appeared to be a significant amount of potentially obsolete parts which adds to the cost of physical storage, IT maintenance and storage costs and in general adding an unnecessary complexity to the inventory and costing process.

3.3.7 Information Technology

While IT was not the area of focus during this engagement, we did note in almost all of the meetings and our physical observations areas of improvement when it came to the utilization of IT. We noted many manual work-arounds instead of using the system, redundant inputting of data and lack of knowledge of the system. It appeared training was very inconsistent.

It was apparent that there was not an overall DDOT IT strategic plan as to how and when the city-wide systems would be implemented and others phased out. It appeared that the information needs of DDOT need to be re-addressed and linked to the systems in place and planned in the future. The IT Model below is a roadmap on how to address the maximization of information technology. As a minimum, DDOT should establish IT Objectives, Information Strategy Plan (ISP), Cost/Benefit Strategies and IT Culture Change Strategies.





3.3.8 Management Information & Reporting

It was apparent from our brief observations at DDOT and our discussions with management that information to run the departments was severely lacking. Basic performance metrics, standardized monitoring mechanisms, access to data, and understanding of current operating reports was minimal. It appeared that management information and reporting has been lost through all the changes and attrition of personnel. For example, many conversations took place during our engagement where employees neither knew the data in their systems nor could they explain how the system worked.

3.3.9 Human Resource Management

The following observations were made during our review; however, they were not reviewed in more detail due to the activities being beyond the scope of this engagement.

- KPMG cannot recommend significant concessions on the part of management, nor a shift in its bargaining position. However, it is manifestly clear that DDOT would be more successful in pursuing efficiencies and effectiveness if it put together a plan to make improvements as labor contracts come up for renewal.
- Absenteeism is a costly situation at DDOT. It has averaged 21% for drivers and 17% for mechanics for the first 9 months in the 2001 calendar year. Working with the unions, DDOT should move progressively to improve the situation. Improving absenteeism has significant challenges; but, a step-by-step timed-out improvement plan is the first step. If properly addressed, reducing absenteeism can be a win-win for management, employees and the union. In this regard, there is also the potential for overtime reductions, given that overtime amounted to an excess of \$15 million for the first few months of the 2001 calendar year.
- Drivers are required to perform daily inspections and to routinely work the wheel chair lifts, however non-compliance is not monitored, but is evidenced by the large number of certain preventable repairs.
- Driver training handbooks are outdated and information is poorly presented.

3.3.10 Finance and Budgeting

While the City has endeavored to create performance-based budgets, agency budget practices may undermine the ability of DDOT to improve operations. Budgets should be structured to facilitate operations and provide management a guide to the effective allocation of resources and their usage.



- The DDOT reporting mechanisms make it difficult to identify the goods and services to be purchased and governed under the federal purchasing rules. It appeared during our observations and interviews that all purchases are subjected to federal guidelines, regardless of source of funding.
- Some of the division heads we talked to did not know their division's budget and they did not monitor actual cost expenditures.



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July 13, 2001

Mr. Joe Harris
Auditor General
City of Detroit
208 Coleman A. Young Municipal Center
Detroit, MI 48226

RE: Performance Assessment of Detroit Department of Transportation, July 2001 - Department Response

Dear Mr. Harris:

The department has reviewed your performance assessment conducted by KPMG LLP's Management Assurance Services. Most of your findings parallel what we (D-DOT) pointed out to you at the entrance conference.

Cognizant of our challenges, D-DOT has already begun the process to engage experienced contractors to assist in correcting or implementing the necessary practices towards operating a more efficient and effective bus service.

Noteworthy is the peer group that D-DOT was compared with. Unlike D-DOT, most of the peer agencies are not connected with their city, but are stand alone transit agencies, which results in less complexity and significantly less costs. The report also fails to discuss the variables in private vs. public vs. transit authorities, and union vs. private labor.

Another important factor is that most of the peer groups also operate rail and/or rapid transit service. This usually results in a more varied rider profile, with increased ridership levels, higher frequencies of supporting bus services and most importantly a stable, dedicated source of funding.

For the most part, the report attempts to be objective and helpful. Many of the recommendations, as a credit to D-DOT, are already at varying stages of initiation except for the Information Technology recommendations. Our intent is to act on this recommendation also.

Attached, we offer just a few observations/facts found in the report, that may be inaccurate or entirely subjective.

We appreciate your patience as we prepared the second draft in response to the final report and recommendations.

Sincerely,

Sandra Bomar Parker
Interim Director

cc: Dennis W. Archer, Mayor
Angela Brown Wilson, Executive Asst. to the Mayor
Gerarda McCarthy, Executive Asst. to the Mayor - City Council

*Dennis W. Archer, Mayor
City of Detroit*

**DETROIT DEPARTMENT OF TRANSPORTATION
RESPONSE TO AUDITOR GENERAL
OPERATIONAL PERFORMANCE ASSESSMENT
JULY 13, 2001**

Page 2 1.2.1 Ridership Survey

Paragraph 2:

Auditor General: "Several alternatives to traditional bus service exist, such as van pools, taxi vouchers, and direct response vehicle dispatch, that could be utilized by D-DOT to better serve the customer base while reducing the total cost of service".

D-DOT: The Department is unable to deploy many of the "alternatives to traditional bus services" because of political and bargaining unit constraints. Van pools and taxi voucher programs are offered in the region through the administration of SEMCOG, the MPO.

Page 2 1.2.2 Operating Costs

Paragraph 1:

Auditor General: "The significant increases in operating costs are happening at times when population is decreasing in the City of Detroit and based on the latest Census information, only 15% of the Detroit citizens over 16 years of age utilize bus services for commute to work".

D-DOT: It is unfortunate that the data used is over a decade old (1990 census). D-DOT is the largest service provider transporting over 65% of all passengers in SE Michigan. Approximately 53% of D-DOT passengers' most frequent trips are for getting to work.

Paragraph 2:

Auditor General: "The savings could be spent on upgrading services and facilities for the citizens of Detroit. Other possibilities could lead to reallocation of funds to other areas of the City, reduced bus fares, or new special ride programs for the disadvantaged".

D-DOT: D-DOT is currently undergoing a facilities assessment. In year 2001, we were awarded an FTA grant to build a new transit center on the eastside of Detroit, which includes a child care facility and other passenger conveniences. Also, effective July 2000, senior citizens and the disabled began to ride D-DOT free of charge.

Page 3 1.2.3 Organization Structure & Management Effectiveness

Paragraph 1:

Auditor General: "...we noted that top leadership was primarily focused on the day-to-day problems and activities. There appeared to be very little time to develop improvement strategies and manage the operations by delegating to middle management personnel".

D-DOT: As publicly stated in September 2000, D-DOT's main concentration was to be two fold: Most importantly, to provide an increased amount of scheduled service while (2) assessing and correcting processes towards more effective and efficient service. Since December 2000, every manager has been baselined with measurable goals and objectives through the Performance Management and Development initiative.

Page 11 Key Performance Indicators: Overall Performance

Paragraph 1:

Auditor General: "D-DOT is in the middle of the group with an average of 10.35 persons on board the buses".

D-DOT: Unfortunately, the report does not highlight our strengths. D-DOT, in fact, leads the four (4) peer group systems with 10.35 persons on board the bus.

Page 12 Key Performance Indicators: Operational Efficiency

Paragraph 1:

Auditor General: "All three KPI's demonstrate D-DOT's high cost of operation".

D-DOT: It is unclear, due to earlier reference of revenue expense tables on pages 7 and 8, if cost has been deleted from calculations for paratransit and Detroit People Mover when developing these indicators. Costs associated with essential but unfunded mandates like ADA services, and drug and alcohol testing must be performed. Additionally, costs associated with administrative support services from other City departments must also be carried.

Page 16 3.2.2 Summary of Survey Results

Bullets # 4 & 7:

Auditor General: "Some of the transit agencies have implemented a work order process that allows for the work order to be bar scanned"; "Minneapolis uses a bar code scanning process to track inventory movements".

D-DOT: Based on the Auditor General's examples, it is our belief that on some of these "best practices" issues, the Auditor General did not inquire of our staff. At the time of DRMS implementation, D-DOT had issued an RFP and was prepared to award contract to the selected vendor for bar coding. The RFP was issued based on D-DOT's use of the Lawson Inventory software. DRMS, which initially did not include Maintenance Repair Operators (MRO) inventory, started looking at E-MPAC as the City's inventory software of choice. D-DOT's project was put on hold. In addition, deficiencies were identified in E-MPAC that made

leading to a duplication of service and utilization of assets".

D-DOT: Again, the Auditor General's assessment of this issue is unfounded based on little information because "this was not within the scope of (this) engagement". A report prepared by KPMG Consulting for the Regional Transit Coordinating Council (RTCC) in May, 2000 concluded that "D-DOT and SMART have coordinated activities...Most significantly, a uniform regional fare structure...honored by both systems. Additional successful coordination ranges from successful joint application for a welfare-to-work project grant to a joint-certification program for disadvantaged business enterprises". D-DOT continues coordination with SMART and community-based transportation providers through projects of electronic data exchange, procurement purchases, funding administration and public participation.

Page 21 3.3.4 Purchasing

Bullet #1:

Auditor General: "The department is not customer focused - practices and focus tend to be tactical prevention of potential abuses rather than strategic facilitation of appropriate purchases".

D-DOT: To emphatically state that D-DOT's Purchasing (P/CA) is not customer focused is false. P/CA staff meets weekly with Vehicle Maintenance and Inventory management and staff and regularly engages in telephone conversations. Plant maintenance staff frequently visits the P/CA office where efforts are made to address their concerns. The P/CA staff, however, must also remain in compliance with Federal, State and City purchasing regulations and policies. The frequency of audits mandates constant vigilance against potential abuses. This effort may be perceived by our customers as not in their best interest.

Page 21 3.3.4 Purchasing

Bullet #2:

Auditor General: "The process is inefficient and slow due to redundant data processing activities and over application of federal procurement rules, thereby causing operational problems and control gaps throughout the organization".

D-DOT: D-DOT's automated system (Lawson) is an integral part of its operation. To state that it is not used for any agency advantage is erroneous. Lawson is used to manage and monitor each buyer's workload and productivity, as well as monitor each vendor's performance. Data from the system has been used as a basis for rejecting prospective contractors due to past performance and for developing usage data for new contracts.

Page 22 3.3.5 Maintenance

Bullet #1:

Auditor General: "Cost and frequency of maintenance is not tracked or monitored".

D-DOT: Both costs and frequency is tracked. Costs, however, are not usually monitored at the Vehicle Maintenance Divisional level on the Lawson software system. Maintenance costs in total are monitored by the Accounting Division of D-DOT. Frequency of maintenance is bot tracked and monitored regularly through labor cards and work orders.

Auditor General: "Warranty recovery is not realized on parts previously replaced".

D-DOT: D-DOT has a warranty procedure that is closely monitored and the costs of these repairs is recovered through our Vendor Liaison. The Quality Assurance function at D-DOT periodically checks components/parts for specification adherence; and when patterns of failure or non-compliance are found, warranty recovery is sought from the vendor. Quality Assurance awaits additional staff appropriations to more clearly monitor parts replacement warranties.

Auditor General: "Maintenance productivity is not monitored against acceptable industry standards nor are standard times updated in a timely manner".

D-DOT: Vehicle Maintenance standards are applied to most jobs. They are reported as new fleets are introduced to the department. Most time standards stay consistent throughout the life of the vehicle.

Bullet #2:

Auditor General: "D-DOT is primarily reactive in its approach to maintenance impairing the implementation of a more cost effective and efficient proactive preventive maintenance program".

D-DOT: Vehicle Maintenance performs a preventative maintenance inspection between 5,500 and 6,500 miles, plus it performs brake checks to identify potential problems. Also it performs a summer campaign to identify potential problems.

Bullet #6 (Page 23):

Auditor General: "Facilities are in need of repair and/or replacement as major systems such as fluid delivery, hoists and air quality controls are in a state of disrepair that adversely impacts service delivery".

D-DOT: New hose reels, bulk storage and coach vacuum systems have been installed at all locations. Further, the department is in the process of updating its 1991 facilities assessment through an independent contractual arrangement.

Page 3.3.6 Inventory Management

Paragraph 1:

Auditor General: "The gaps created by...an ineffective procurement function...".

D-DOT: The statement that procurement is ineffective is not substantiated by any of the findings reported. It's another example of a poor choice of words by KPMG. The redundant processes and multiple procurement guidelines do impact our effectiveness; however, D-DOT's P/CA office is not useless.

Bullet #1:

Auditor General: "New buses put into service with no supply of parts for maintenance...".

D-DOT: The parts immediately acquired for new buses are based on the manufacturer's recommendation. There will always be a part needed that was either not on the list or that was improperly identified.

Bullet #4:

Auditor General: "Inventory reorder parts are not working..."

D-DOT: The inventory reorder points within Lawson work. A reassessment of the reorder points is needed; however, more staff is needed to effectively utilize the information.

Bullet #7:

Auditor General: "Stockroom personnel do not report to the operational managers they are serving..."

D-DOT: There is no evidence to support that changing the reporting structure for Inventory will improve service delivery. Even the peer group survey does not address this issue.

Page 26 3.3.10 Finance and Budgeting

Paragraph 1, Bullet #1:

Auditor General: "The D-DOT budget does not adequately identify the application of federal resources to the procurement of goods and services subject to federal purchasing rules".

D-DOT: In FY98, the Federal Government provided operating assistance under the urbanized Area Formula Program. This program did not subject transit agencies to federal purchasing rules. The DOT 1998 Appropriations Act established Preventive Maintenance as eligible for FTA capital assistance under TEA-21, so FY98 capital funds and subsequent fiscal year appropriations may be used for preventive maintenance. All other federal operating assistance for urbanized area with population above 200,000 was discontinued. In an effort to maintain D-DOT's budget, cost that were previously expended with operational funds now are transferred to FTA capital assistance line items. All FTA capital assistance under TEA-21 is subject to federal purchasing rules. In FY00, D-DOT transferred a total cost of \$10,500,000 from the "Repair and Maintenance-Automotive" line item. Unfortunately, ninety-percent (90%) of D-DOT's contract exists within this line item forcing the department to comply with federal guidelines on most of its obligations. In the future, the department will attempt to use maintenance salaries and wages expense for future maintenance transfers, provided it meets FTA eligibility.

D-DOT Performance Assessment

Peer Group Key Performance Indicators

Ten City Comparison of Financial, Operational, and Performance Information for 1999

Data for Comparison	Detroit	Average	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
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System Wide Information

General Information:

Service Area Statistics

Square Miles	144	970	356	243	458	173	775	1,038	1,105	2,174	2,406
Population	1,065,567	2,079,008	3,708,773	990,700	1,412,140	509,356	1,402,267	2,602,487	2,256,442	3,728,909	2,100,000
Population per Square Mile	7,400	3,274	10,418	4,077	3,083	2,944	1,809	2,507	2,042	1,715	873

Service Consumption

Annual Passenger Miles	189,894,635	692,422,026	1,652,207,485	192,933,048	285,789,809	59,603,513	306,387,785	1,748,792,119	283,272,366	1,337,330,858	365,481,254
Annual Unlinked Trips	42,318,646	167,266,844	466,735,403	68,901,799	67,653,805	15,531,038	76,646,873	354,965,815	71,874,147	308,399,346	74,693,374
Annual Passenger Miles/Unlinked Trip	4.49	4	3.54	2.80	4.22	3.84	4.00	4.93	3.94	4.34	4.89
Average Weekday Unlinked Trips	149,022	552,545	1,518,727	223,347	225,273	51,873	256,150	1,158,725	238,650	1,048,009	252,147
Average Saturday Unlinked Trips	62,570	304,433	870,141	128,066	126,721	27,918	139,402	661,873	125,642	539,281	120,857
Average Sunday Unlinked Trips	26,782	193,924	562,195	87,180	60,625	12,706	68,380	454,139	77,327	351,626	71,141

Ratio of Service Consumption/Service Area Square Miles

Annual Passenger Miles	1,318,713	1,056,337	4,641,032	793,963	623,995	344,529	395,339	1,684,771	256,355	615,148	151,904
Annual Unlinked Trips	293,879	278,990	1,311,055	283,546	147,716	89,775	98,899	341,971	65,044	141,858	31,045
Average Weekday Unlinked Trips	1,035	914	4,266	919	492	300	331	1,116	216	482	105
Average Saturday Unlinked Trips	435	515	2,444	527	277	161	180	638	114	248	50
Average Sunday Unlinked Trips	186	326	1,579	359	132	73	88	438	70	162	30

Ratio of Service Consumption/Service Area Population

Annual Passenger Miles	178.21	279	445.49	194.74	202.38	117.02	218.49	671.97	125.54	358.64	174.04
Annual Unlinked Trips	39.71	68	125.85	69.55	47.91	30.49	54.66	136.39	31.85	82.70	35.57
Average Weekday Unlinked Trips	0.14	0.23	0.41	0.23	0.16	0.10	0.18	0.45	0.11	0.28	0.12
Average Saturday Unlinked Trips	0.06	0.12	0.23	0.13	0.09	0.05	0.10	0.25	0.06	0.14	0.06
Average Sunday Unlinked Trips	0.03	0.08	0.15	0.09	0.04	0.02	0.05	0.17	0.03	0.09	0.03

Service Supplied

Annual Vehicle Revenue Miles	18,866,742	50,157,219	124,290,517	19,857,780	28,589,294	9,933,598	40,615,905	84,350,006	24,834,651	77,853,775	41,089,441
Annual Vehicle Revenue Hours	1,725,537	3,623,214	9,679,966	1,517,725	2,200,813	658,610	3,061,808	5,013,029	1,745,882	6,066,674	2,664,415
Annual Vehicle Revenue Miles/Hour	10.93	14.06	12.84	13.08	12.99	15.08	13.27	16.83	14.22	12.83	15.42
Vehicles Available for Maximum Service (VAMS)	620	1,627	3,595	551	973	389	1,471	2,505	910	2,763	1,486
Vehicles Operated in Maximum Service (VOMS)	469	1,339	2,886	468	792	321	1,280	2,102	789	2,231	1,183
Base Period Requirement (BPR)	323	556	1,276	247	342	98	427	832	294	992	494
Ratio of VOMS/BPR	1.45	2.51	2.26	1.89	2.32	3.28	3.00	2.53	2.68	2.25	2.39
Ratio of VOMS/VAMS	0.76	0.83	0.80	0.85	0.81	0.83	0.87	0.84	0.87	0.81	0.80
Ratio of VAMS/BPR	1.92	3.02	2.82	2.23	2.85	3.97	3.44	3.01	3.10	2.79	3.01
Ratio of VAMS/1,000,000 Annual Passenger Miles	3.26	3.39	2.18	2.86	3.40	6.53	4.80	1.43	3.21	2.07	4.07
Ratio of VOMS/1,000,000 Annual Passenger Miles	2.47	2.82	1.75	2.43	2.77	5.39	4.18	1.20	2.79	1.67	3.24
Ratio of BPR/1,000,000 Annual Passenger Miles	1.70	1.10	0.77	1.28	1.20	1.64	1.39	0.48	1.04	0.74	1.35
Ratio of VAMS/1,000,000 Annual Unlinked Trips	14.65	13.65	7.70	8.00	14.38	25.05	19.19	7.06	12.66	8.96	19.89
Ratio of VOMS/1,000,000 Annual Unlinked Trip	11.08	11.34	6.18	6.79	11.71	20.67	16.70	5.92	10.98	7.23	15.84

D-DOT Performance Assessment

Peer Group Key Performance Indicators

Ten City Comparison of Financial, Operational, and Performance Information for 1999

Data for Comparison	Detroit	Average	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
Ratio of BPR/1,000,000 Annual Unlinked Trip	7.63	4.39	2.73	3.58	5.06	6.31	5.57	2.34	4.09	3.22	6.61

Ratio of Service Supplied/Service Area Square Miles

Annual Vehicle Revenue Miles	131,019	84,414	349,131	81,719	62,422	57,420	52,408	81,262	22,475	35,811	17,078
Annual Vehicle Revenue Hours	11,983	6,256	27,191	6,246	4,805	3,807	3,951	4,830	1,580	2,791	1,107
Vehicles Available for Maximum Service (VAMS)	4	3	10	2	2	2	2	2	1	1	1
Vehicles Operated in Maximum Service (VOMS)	3	2	8	2	2	2	2	2	1	1	0
Base Period Requirement (BPR)	2	1	4	1	1	1	1	1	0	0	0

Ratio of Service Supplied/Service Area Population

Annual Vehicle Revenue Miles	17.71	22.90	33.51	20.04	20.25	19.50	28.96	32.41	11.01	20.88	19.57
Annual Vehicle Revenue Hours	1.62	1.64	2.61	1.53	1.56	1.29	2.18	1.93	0.77	1.63	1.27
Vehicles Available for Maximum Service (VAMS)	0.00058	0.00076	0.00097	0.00056	0.00069	0.00076	0.00105	0.00096	0.00040	0.00074	0.00071
Vehicles Operated in Maximum Service (VOMS)	0.00044	0.00063	0.00078	0.00047	0.00056	0.00063	0.00091	0.00081	0.00035	0.00060	0.00056
Base Period Requirement (BPR)	0.00030	0.00025	0.00034	0.00025	0.00024	0.00019	0.00030	0.00032	0.00013	0.00027	0.00024

Vehicles Operated in Maximum Service

Bus - Directly Operated	440	769	1,545	451	621	212	806	770	789	1,087	639
Bus - Purchased Transportation	0	67	0	0	0	0	0	109	0	216	274
Demand Response/Vanpool - Directly Operated	0	13	0	17	83	5	0	0	0	0	15
Demand Response/Vanpool - Purchased Transportation	29	216	413	0	34	88	425	340	0	409	231

Financial Information:

Fare Revenues Earned

Directly Operated	\$30,551,836	\$121,888,840	\$365,757,075	\$36,784,824	\$41,773,055	\$7,388,229	\$50,677,843	\$234,275,527	\$56,056,135	\$264,471,749	\$39,815,119
Purchased Transportation	\$250,080	\$2,517,096	\$1,859,448	\$0	\$79,808	\$505,877	\$5,331,498	\$6,867,833	\$0	\$3,684,222	\$4,325,182
Total Fare Revenues Earned	\$30,801,916	\$124,405,936	\$367,616,523	\$36,784,824	\$41,852,863	\$7,894,106	\$56,009,341	\$241,143,360	\$56,056,135	\$268,155,971	\$44,140,301

Sources of Operating Funds Expended

Passenger Fares	\$30,801,916	\$124,405,936	\$367,616,523	\$36,784,824	\$41,852,863	\$7,894,106	\$56,009,341	\$241,143,360	\$56,056,135	\$268,155,971	\$44,140,301
Local Funds	\$60,579,382	\$95,804,267	\$249,817,000	\$11,611,560	\$154,355,680	\$28,939,152	\$22,074,762	\$158,294,710	\$57,147,656	\$63,042,523	\$116,955,360
State Funds	\$60,168,110	\$130,921,686	\$156,426,736	\$44,882,317	\$9,259,427	\$2,496,379	\$133,168,450	\$456,138,702	\$40,820,542	\$335,102,617	\$0
Federal Assistance	\$1,196,561	\$10,043,799	\$0	\$9,195,887	\$3,121,321	\$5,759,993	\$14,665,336	\$6,500,000	\$4,211,474	\$27,500,000	\$19,440,180
Other Funds	\$921,354	\$11,820,319	\$31,093,034	\$815,692	\$3,984,184	\$672,673	\$12,371,415	\$16,087,829	\$3,719,950	\$24,614,550	\$13,023,548
Total Operating Funds Expended	\$153,667,323	\$372,996,007	\$804,953,293	\$103,290,280	\$212,573,475	\$45,762,303	\$238,289,304	\$878,164,601	\$161,955,757	\$718,415,661	\$193,559,389

Sources of Operating Funds Share of Total

Passenger Fares	20.04%	29.33%	45.67%	35.61%	19.69%	17.25%	23.50%	27.46%	34.61%	37.33%	22.80%
Local Funds	39.42%	34.43%	31.03%	11.24%	72.61%	63.24%	9.26%	18.03%	35.29%	8.78%	60.42%
State Funds	39.15%	28.04%	19.43%	43.45%	4.36%	5.46%	55.89%	51.94%	25.20%	46.64%	0.00%
Federal Assistance	0.78%	5.15%	0.00%	8.90%	1.47%	12.59%	6.15%	0.74%	2.60%	3.83%	10.04%
Other Funds	0.60%	3.05%	3.86%	0.79%	1.87%	1.47%	5.19%	1.83%	2.30%	3.43%	6.73%
Total Operating Funds Expended	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Summary of Operating Expenses

Salaries, Wages, and Benefits	\$104,903,128	\$263,534,010	\$635,996,248	\$85,581,766	\$159,629,429	\$31,584,628	\$171,125,008	\$498,132,902	\$130,058,877	\$551,811,598	\$107,885,630
Materials and Supplies	\$15,233,034	\$30,814,030	\$92,994,145	\$8,222,723	\$18,018,825	\$5,033,614	\$22,345,152	\$51,354,340	\$17,039,597	\$42,768,410	\$19,549,465

D-DOT Performance Assessment

Peer Group Key Performance Indicators

Ten City Comparison of Financial, Operational, and Performance Information for 1999

Data for Comparison	Detroit	Average	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
Purchased Transportation	\$3,749,595	\$17,983,836	\$27,910,289	\$0	\$1,371,473	\$4,317,591	\$26,517,150	\$35,093,593	\$0	\$31,841,421	\$34,803,006
Other Operating Expenses	\$29,354,429	\$31,341,015	\$42,890,198	\$8,493,639	\$27,100,008	\$6,126,162	\$6,161,593	\$111,614,713	\$14,173,026	\$43,205,763	\$22,304,036
Total Operating Expenses	\$153,240,186	\$343,672,891	\$799,790,880	\$102,298,128	\$206,119,735	\$47,061,995	\$226,148,903	\$696,195,548	\$161,271,500	\$669,627,192	\$184,542,137
Ratio of Total Operating Expenses/Service Area Population	\$143.81	\$147.22	\$215.65	\$103.26	\$145.96	\$92.40	\$161.27	\$267.51	\$71.47	\$179.58	\$87.88
Ratio of Total Operating Expenses/Service Area Square Miles	\$1,064,167.96	\$542,537.67	\$2,246,603.60	\$420,979.95	\$450,043.09	\$272,034.65	\$291,805.04	\$670,708.62	\$145,947.06	\$308,016.19	\$76,700.81
Ratio of Total Operating Expenses/BPR	\$474,427.82	\$565,267.20	\$626,795.36	\$414,162.46	\$602,689.28	\$480,224.44	\$529,622.72	\$836,773.50	\$548,542.52	\$675,027.41	\$373,567.08
Ratio of Total Operating Expenses/Annual Passenger Miles	\$0.81	\$0.58	\$0.48	\$0.53	\$0.72	\$0.79	\$0.74	\$0.40	\$0.57	\$0.50	\$0.50
Reconciling Cash Expenditures (Funds Expended - Expenses)	\$427,137	\$32,885,503	\$5,162,413	\$992,152	\$6,453,740	\$0	\$12,140,401	\$212,730,844	\$684,257	\$48,788,469	\$9,017,252

Summary of Operating Expenses Share of Total

Salaries, Wages, and Benefits	68.46%	75.16%	79.52%	83.66%	77.45%	67.11%	75.67%	71.55%	80.65%	82.41%	58.46%
Materials and Supplies	9.94%	9.32%	11.63%	8.04%	8.74%	10.70%	9.88%	7.38%	10.57%	6.39%	10.59%
Purchased Transportation	2.45%	5.97%	3.49%	0.00%	0.67%	9.17%	11.73%	5.04%	0.00%	4.76%	18.86%
Other Operating Expenses	19.16%	9.55%	5.36%	8.30%	13.15%	13.02%	2.72%	16.03%	8.79%	6.45%	12.09%
Total Operating Expenses	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Reconciling Cash Expenditures (Funds Expended - Expenses)	0.28%	5.33%	0.65%	0.97%	3.13%	0.00%	5.37%	30.56%	0.42%	7.29%	4.89%

Sources of Capital Funds Expended

Local Funds	\$0	\$45,454,950	\$43,834,469	\$492,747	\$15,599,946	\$2,514,026	\$3,107,485	\$165,568,087	\$17,973,257	\$127,544,954	\$32,459,575
State Funds	\$1,234,462	\$18,993,247	\$20,779,979	\$0	\$5,474,311	\$0	\$35,818,196	\$0	\$5,599,596	\$103,267,138	\$0
Federal Assistance	\$5,119,042	\$57,975,853	\$133,318,882	\$2,374,540	\$24,074,839	\$8,090,523	\$79,823,883	\$128,787,448	\$44,397,809	\$48,870,912	\$52,043,840
Total Capital Funds Expended	\$6,353,504	\$122,424,049	\$197,933,330	\$2,867,287	\$45,149,096	\$10,604,549	\$118,749,564	\$294,355,535	\$67,970,662	\$279,683,004	\$84,503,415

Sources of Capital Funds Share of Total

Local Funds	0.00%	29.66%	22.15%	17.19%	34.55%	23.71%	2.62%	56.25%	26.44%	45.60%	38.41%
State Funds	19.43%	10.88%	10.50%	0.00%	12.12%	0.00%	30.16%	0.00%	8.24%	36.92%	0.00%
Federal Assistance	80.57%	59.46%	67.36%	82.81%	53.32%	76.29%	67.22%	43.75%	65.32%	17.47%	61.59%
Total Capital Funds Expended	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Uses of Capital Funds

Bus - Rolling Stock	\$4,235,388	\$13,096,945	\$19,818,580	\$0	\$6,605,676	\$6,240,713	\$9,642,956	\$409,898	\$38,079,937	\$18,280,839	\$18,793,906
Bus - Facilities & Other	\$2,118,116	\$20,566,581	\$25,311,554	\$2,867,287	\$14,824,894	\$4,363,836	\$76,737,220	\$1,814,052	\$29,890,725	\$10,002,420	\$19,287,238
Demand Response/Vanpool - Rolling Stock	\$0	\$812,971	\$0	\$0	\$437,370	\$0	\$0	\$0	\$0	\$6,879,373	\$0
Demand Response/Vanpool - Facilities & Others	\$0	\$213,785	\$0	\$0	\$953,800	\$0	\$0	\$620,525	\$0	\$349,744	\$0
Total Capital Funds	\$6,353,504	\$34,690,283	\$45,130,134	\$2,867,287	\$22,821,740	\$10,604,549	\$86,380,176	\$2,844,475	\$67,970,662	\$35,512,376	\$38,081,144

Modal Information

Characteristics:

Operating Expense - Bus	\$149,490,591	\$200,441,252	\$465,084,809	\$102,202,267	\$155,639,662	\$42,002,148	\$171,382,771	\$205,025,900	\$161,271,500	\$317,775,849	\$183,586,366
Operating Expense - Demand Response/Vanpool	3,749,595	17,080,616	27,910,289	95,861	12,646,205	4,948,357	52,277,496	N/A	N/A	41,844,212	14,003,126
Capital Funding - Bus	6,353,504	33,663,526	45,130,134	2,867,287	21,430,570	10,604,549	86,380,176	2,223,950	67,970,662	28,283,259	38,081,144
Capital Funding - Demand Response/Vanpool	0	1,231,470	0	0	1,391,170	0	0	N/A	N/A	7,229,117	0
Annual Passenger Miles - Bus	188,624,575	320,637,037	716,985,111	190,469,135	206,546,438	57,112,313	261,764,795	351,049,286	283,272,366	472,423,508	346,110,382

D-DOT Performance Assessment

Peer Group Key Performance Indicators

Ten City Comparison of Financial, Operational, and Performance Information for 1999

Data for Comparison	Detroit	Average	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
Annual Passenger Miles - Demand Response/Vanpool	1,270,060	6,764,533	10,187,065	2,463,913	1,838,062	2,094,576	11,872,350	N/A	N/A	13,492,590	5,403,175
Annual Vehicle Revenue Miles - Bus	18,226,558	29,107,644	61,271,438	19,580,275	23,272,500	8,106,385	27,214,652	27,487,278	24,834,651	35,057,384	35,144,235
Annual Vehicle Revenue Miles - Demand Response/Vanpool	640,184	5,325,240	7,488,369	277,505	1,995,809	1,701,107	11,567,617	N/A	N/A	8,979,302	5,266,968
Annual Unlinked Trips - Bus	42,185,131	102,183,267	299,058,490	68,825,977	55,664,526	15,144,916	65,916,191	110,404,782	71,874,147	163,351,562	69,408,808
Annual Unlinked Trips - Demand Response/Vanpool	133,515	865,988	1,199,772	75,822	315,031	374,117	2,028,419	N/A	N/A	1,530,439	538,318
Average Weekday Unlinked Trips - Bus	148,555	336,129	958,488	223,081	187,192	50,508	221,100	365,226	238,650	547,301	233,614
Average Weekday Unlinked Trips - DR/Vanpool	467	3,039	3,774	266	1,003	1,318	6,954	N/A	N/A	5,483	2,476
Annual Vehicle Revenue Hours - Bus	1,653,483	2,446,912	6,184,115	1,510,398	1,859,550	561,094	2,087,784	2,342,065	1,745,882	3,452,659	2,278,657
Annual Vehicle Revenue Hours - DR/Vanpool	72,054	447,318	858,367	7,327	167,257	94,444	838,808	N/A	N/A	843,021	322,003
Fixed Guideway Directional Route Miles - Bus	0.0	28.6	3.7	0.0	0.0	1.1	41.1	3.5	146.6	2.5	58.8
Fixed Guideway Directional Route Miles - DR/Vanpool	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vehicles Available for Maximum Service - Bus	586	969	1,875	533	746	279	940	1,042	910	1,287	1,113
Vehicles Available for Maximum Service - DR/Vanpool	34	298	530	18	119	93	468	N/A	N/A	499	356
Average Fleet Age in Years - Bus	7.8	8.2	9.3	12.4	7.9	5.9	6.4	8.9	5.5	9.4	7.9
Average Fleet Age in Years - Demand Response/Vanpool	1.7	3.2	2.1	5.0	3.5	2.3	3.9	N/A	N/A	2.0	3.6
Vehicles Operated in Maximum Service - Bus	440	813	1,545	451	621	212	806	879	789	1,097	921
Vehicles Operated in Maximum Service - DR/Vanpool	29	246	413	17	117	93	425	N/A	N/A	409	246
Peak to Base Ratio - Bus	1.4	2.0	1.8	1.8	1.9	2.2	2.0	2.1	2.6	1.7	1.8
Peak to Base Ratio - Demand Response/Vanpool	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent Spares - Bus	33%	20%	21%	18%	20%	32%	17%	19%	15%	17%	21%
Percent Spares - Demand Response/Vanpool	17%	16%	28%	6%	2%	0%	10%	N/A	N/A	22%	45%
Incidents - Bus	180	830	2,214	552	789	148	1,499	371	582	1,012	300
Incidents - Demand Response/Vanpool	4	96	177	0	35	15	70	N/A	N/A	332	44
Fatalities - Bus	0	0.22	1	0	0	0	0	0	1	0	0
Fatalities - Demand Response/Vanpool	2	0.00	0	0	0	0	0	N/A	N/A	0	0

Performance Measures:

<i>Service Efficiency</i>											
Operating Expenses per Vehicle Revenue Mile - Bus	\$8.20	\$6.58	\$7.59	\$5.22	\$6.69	\$5.18	\$6.30	\$7.46	\$6.49	\$9.06	\$5.22
Operating Expenses per Vehicle Revenue Mile - DR/Vanpool	\$5.86	\$2.80	\$3.73	\$0.35	\$6.34	\$2.91	\$4.52	N/A	N/A	\$4.66	\$2.66
Operating Expenses per Vehicle Revenue Hour - Bus	\$90.41	\$81.78	\$75.21	\$67.67	\$83.70	\$74.86	\$82.09	\$87.54	\$92.37	\$92.04	\$80.57
Operating Expenses per Vehicle Revenue Hour - DR/Vanpool	\$52.04	\$36.56	\$32.52	\$13.08	\$75.61	\$52.39	\$62.32	N/A	N/A	\$49.64	\$43.49

<i>Cost Effectiveness</i>											
Operating Expenses per Passenger Mile - Bus	\$0.79	\$0.63	\$0.65	\$0.54	\$0.75	\$0.74	\$0.65	\$0.58	\$0.57	\$0.67	\$0.53
Operating Expenses per Passenger Mile - DR/Vanpool	\$2.95	\$2.46	\$2.74	\$0.04	\$6.88	\$2.36	\$4.40	N/A	N/A	\$3.10	\$2.59
Operating Expenses per Unlinked Passenger Trip - Bus	\$3.54	\$2.21	\$1.56	\$1.48	\$2.80	\$2.77	\$2.60	\$1.86	\$2.24	\$1.95	\$2.65
Operating Expenses per Unlinked Passenger Trip - DR/Vanpool	\$28.08	\$17.45	\$23.26	\$1.26	\$40.14	\$13.23	\$25.77	N/A	N/A	\$27.34	\$26.01
Operating Expenses - Bus per # of Bus - Directly Operated	\$339,751.34	\$248,814.98	\$301,025.77	\$226,612.57	\$250,627.48	\$198,123.34	\$212,633.71	\$266,267.40	\$204,399.87	\$292,342.09	\$287,302.61

<i>Service Effectiveness</i>											
Unlinked Passenger Trips per Vehicle Revenue Mile - Bus	2.31	3.18	4.88	3.52	2.39	1.87	2.42	4.02	2.89	4.66	1.97
Unlinked Passenger Trips per Vehicle Revenue Mile - DR/Vanpool	0.21	0.18	0.16	0.27	0.16	0.22	0.18	N/A	N/A	0.17	0.10
Unlinked Passenger Trips per Vehicle Revenue Hour - Bus	25.51	38.72	48.36	45.57	29.93	26.99	31.57	47.14	41.17	47.31	30.46
Unlinked Passenger Trips per Vehicle Revenue Hour - DR/Vanpool	1.85	3.36	1.40	10.35	1.88	3.96	2.42	N/A	N/A	1.82	1.67

<i>Miscellaneous Ratios</i>											
Annual Passenger Miles per Annual Vehicle Rev. Miles - Bus	10.35	10.50	11.70	9.73	8.88	7.05	9.62	12.77	11.41	13.48	9.85

D-DOT Performance Assessment
Peer Group Key Performance Indicators
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Data for Comparison	Detroit	Average	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
Annual Passenger Miles per Service Area Square Miles	1,309,892.88	541,378.16	2,014,003.12	783,823.60	450,974.76	330,128.98	337,761.03	338,197.77	256,355.08	217,306.12	143,853.03
Annual Vehicle Revenue Miles - Bus per Service Area Sq. Miles	126,573.32	51,684.80	172,110.78	80,577.26	50,813.32	46,857.72	35,115.68	26,481.00	22,474.80	16,125.75	14,606.91
Annual Passenger Miles per Service Area Population	177.02	153.62	193.32	192.26	146.26	112.13	186.67	134.89	125.54	126.69	164.81
Annual Unlinked Trips - Bus per Service Area Square Miles	292,952.30	188,090.57	840,051.94	283,234.47	121,538.27	87,542.87	85,053.15	106,362.99	65,044.48	75,138.71	28,848.22
Annual Unlinked Trips - Bus per Service Area Population	39.59	46.38	80.64	69.47	39.42	29.73	47.01	42.42	31.85	43.81	33.05
Avg Weekday Unlinked Trips - Bus per Service Area Square Miles	1,031.63	612.56	2,692.38	918.03	408.72	291.95	285.29	351.86	215.97	251.75	97.10
Avg Weekday Unlinked Trips - Bus per Service Area Population	0.14	0.15	0.26	0.23	0.13	0.10	0.16	0.14	0.11	0.15	0.11
Directly Operated Bus per Service Area Square Miles	3.06	1.34	4.34	1.86	1.36	1.23	1.04	0.74	0.71	0.50	0.27
Directly Operated Bus per 100,000 Service Area Population	41.29	39.3766	41.66	45.52	43.98	41.62	57.48	29.59	34.97	29.15	30.43
VOMS - Bus/VAMS - Bus	0.75	0.83	0.82	0.85	0.83	0.76	0.86	0.84	0.87	0.85	0.83

Table 12
Transit Operating Expenses by Mode and Object Class: Details by Transit Agency

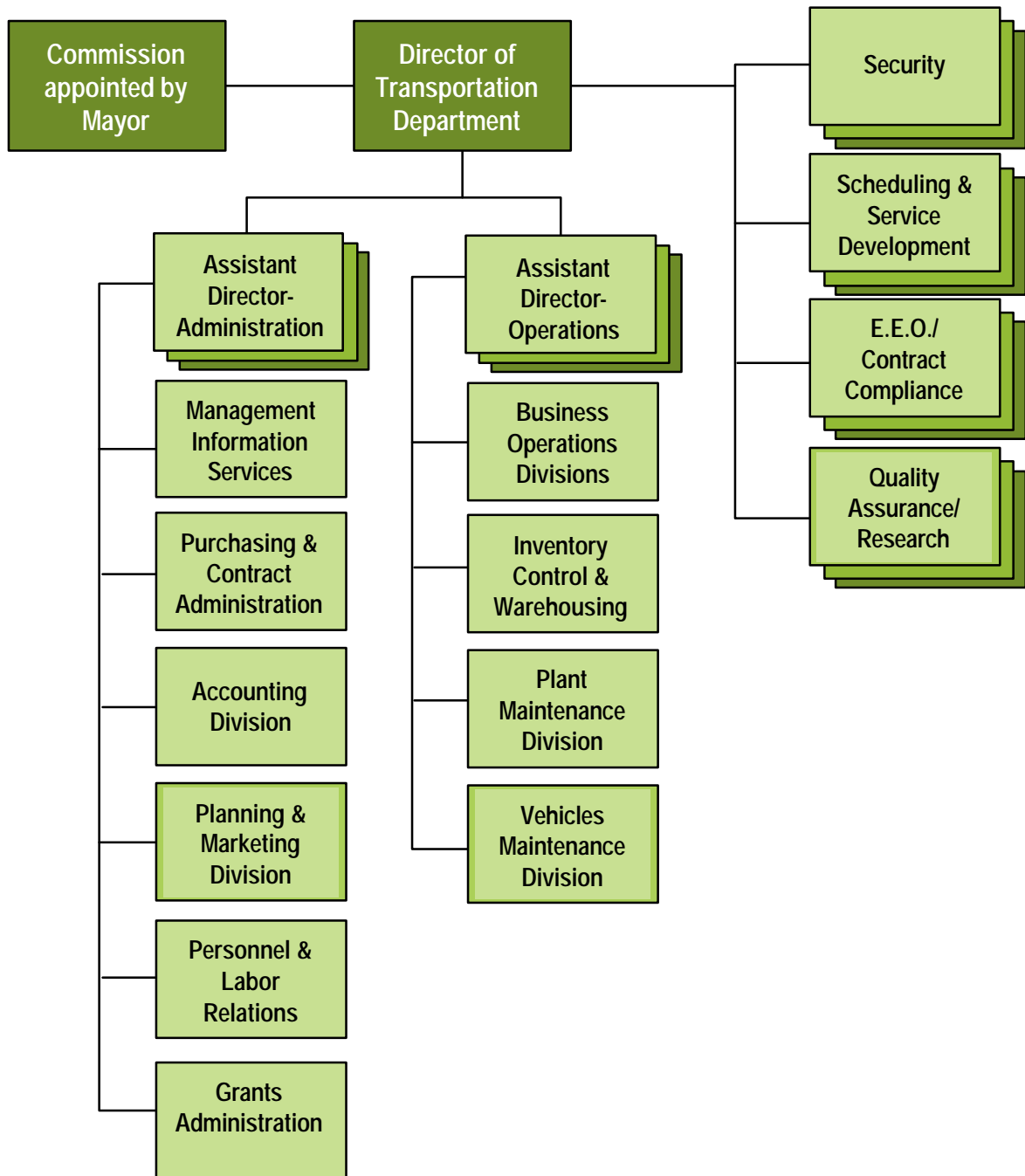
Transit Agency					Operating Expenses (Dollars in 000's)												
					Labor Salaries and Wages				Materials and Supplies				Purchased Transp.**				
State	Name	ID/Org	Mode	VOMS*	Vehicle Operations	Other	Fringe Benefits	Services	Fuel and Lube	Tires and Others	Utilities	Casualty and Liabilities	in Report	Filing Separate Report	Other	Expense Transfers	Total
CO	Denver-RTD	8006-B	MB	558	34,511.0	29,218.0	32,870.7	10,533.1	4,058.5	13,956.7	2,560.0	3,014.2	8,788.7	19,454.3	2,617.5	0.0	161,582.6
IL	Chicago-RTA-cta	5066-B	MB	1,583	131,221.5	108,673.6	146,832.6	30,182.5	11,818.3	47,334.3	7,202.6	8,474.8	0.0	0.0	4,111.4	-20,034.3	475,817.3
MA	Boston-MBTA	1003-B	MB	758	51,715.2	44,978.4	59,251.2	6,782.8	5,548.4	8,145.3	247.5	4,205.5	5,798.0	0.0	2,818.0	0.0	189,490.2
MN	Minneapolis-St. Paul-Metro	5027-B	MB	769	46,380.0	34,280.5	41,081.7	6,468.7	6,079.9	10,058.3	2,373.8	1,964.7	165.6	0.0	2,509.4	-529.4	150,833.2
MO	Kansas City Area TA	7005-B	MB	198	11,102.9	8,449.4	9,550.6	2,637.6	1,455.0	3,024.1	494.2	651.0	0.0	0.0	801.7	0.0	38,166.6
OH	Cleveland-RTA	5015-B	MB	617	42,220.5	42,359.8	32,001.2	6,517.0	3,371.5	11,808.6	3,230.4	2,957.4	621.1	0.0	4,496.0	0.0	49,583.3
PA	Philadelphia-SEPTA	3019-B	MB	1,081	74,038.6	79,218.9	95,859.9	14,004.5	8,151.3	19,201.8	5,492.1	20,337.3	240.9	0.0	1,968.4	-22068.3	296,445.5
PA	Pittsburgh-PA Transit	3022-B	MB	786	49,997.5	48,160.2	48,092.4	4,643.4	6,822.9	12,681.4	2,033.3	1,801.2	0.0	0.0	2,504.2	-9,193.5	167,543.1
WI	Milwaukee-County TS	5008-A	MB	443	31,757.2	18,057.7	31,233.2	4,353.3	2,687.8	5,213.3	1,091.0	899.5	0.0	0.0	696.5	-302.9	96,676.8
Average:					754.8	52,549.4	45,932.9	55,197.1	9,569.2	5,554.8	14,602.6	2,747.2	4,922.8	1,734.9	2,161.6	2,502.6	180,682.1
MI	Detroit-dot	5119-B	MB	442	27,961.3	32,538.9	37,362.7	10,075.4	4,128.7	10,084.2	3,657.9	10,529.9	0.0	0.0	564.2	0.0	136,903.2

* VOMS includes directly operated vehicles by mode and type of service reported on Transit System Service Form (406) under the same NTD identification number

** Includes expenses for contracts with public agencies and/or private contractors.

Detroit Department of Transportation

Top Management Organization Chart



**Detroit Department of Transportation
Performance Assessment
Survey of Peer Group Support Operations**

Operations:										
<u>Questions</u>	Detroit	Chicago	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minn	Philadelphia	Denver
Are drivers assigned to the same bus every shift?	No	N/A	No	No	N/A	No	No	N/A	No, tried before and failed	N/A
What is the planned interval time at a high volume bus stop during peak time? During non-peak time?	5 min 40 min	N/A	3-6 min 12-15 min	4 min 15-30 min	N/A	1-2 min 15 min	5-10 min 10-15 min	N/A	3 min N/A	N/A
What is the planned interval time at a low volume bus stop during peak time?	30 min	N/A	15-20 min	20 min	N/A	30 min	30 min	N/A	N/A	N/A
	6am-9am 2pm-6pm	N/A	6am-9am 3pm-6pm	6:30am-8:30am 3:30pm-5:30pm	N/A	6am-9am 4pm-6pm	5:30am-7:30am 3:45pm-6:30pm	N/A	6:30am-9am 3pm-6:30pm	N/A
How is ridership tracked?	Manually Sample/monit or bus and/or stops	N/A	Infrared eyes & manually sample/monit or bus and/or stops	Manually Sample or monitor bus and/or stops	N/A	Farebox	Manually Sample or monitor bus and/or stops	N/A	Farebox & Manually Sample or monitor bus and/or stops	N/A
Type of routing and ridership tracking IT system used?	EZ Data	N/A	Custom	Custom	N/A	Custom. Farebox data interfaces into	Custom	N/A	Custom	N/A
Does the transit entity use alternative transit means for special needs (cabs, mini-buses)? Describe	Yes, ADA riders	N/A	No	Yes, ADA riders or special events	N/A	Yes, ADA riders and links to suburbs	Yes, for overcapacit y	N/A	Yes, ADA riders	N/A
Is absenteeism an issue in obtaining desired results?	Yes 21% TEO 17% Mech	N/A	Yes	Yes 14% overall	N/A	Yes.	Yes	N/A	Yes	N/A

Detroit Department of Transportation Performance Assessment Survey of Peer Group Support Operations

Maintenance:										
<u>Questions</u>	Detroit	Chi	Milwaukee	Cleveland	Kansas City	Pittsburgh	Bos	Minn	Philadelphia	Denver
How many bus barns and maintenance locations?	4	N/A	4	8	1	6	N/A	N/A	9	6
What are the maintenance hours? PM – Preventative Maintenance HY – Heavy Repair	PM 24/7 HY – 1 st shift	N/A	PM 24/7 HY–1 st shift	24/7 all	PM 24/7 HY – 1 st shift	PM 24/7 HY – 1 st shift	N/A	N/A	PM 24/7 HY – 1 st shift	PM 24/7 HY – 1 st shift
Type of IT maintenance system? Is it interfaced with inventory, procurement, and fuel?	Lawson Yes.	N/A	Custom. Yes.	Custom. Yes, but limited.	Custom. Yes.	Custom. Yes, but limited	N/A	N/A	CSI. Yes	Custom. No
Are parts rebuilt in house? If so, what type of parts?	Yes. Everything	N/A	Yes. Various Trying to increase outsourcing	Yes. Everything	Yes. Everything	Yes. Everything	N/A	N/A	Yes. Everything	Yes, Everything
Do you have a scheduled maintenance program? Describe.	Brakes–wkly Summer/winter	N/A	No. As needed	No. As needed	No. As needed	Summer/Winter	N/A	N/A	Yes, every 48k replace major items	No. As needed
Do you have a preventative maintenance program? Describe.	Fluids, filters, various inspection – every 6k	N/A	Fluids, filters, various inspection – every 6k	Fluids, filters, various inspection – every 6k	Fluids, filters, various inspection – every 6k	Visual-3k, fluids, filters, various inspection – every 6k	N/A	N/A	Visual-3k, fluids, filters, various inspection – every 6k	Fluids, filters, various inspection – every 6k
Do you track costs (labor & parts) incurred via maintenance work-orders?	No	N/A	No	Yes.	No.	No	N/A	N/A	Yes	No
Is there any monitoring of maintenance effort against industry standards? If so, what standard is used?	No	N/A	# of road calls cost/mile Staffing/bus	No.	No	No	N/A	N/A	Yes. Cost/benefits of in house work, cost/mile, revenue/mile, time stds	No
Do you utilize work orders for both parts and labor? Automated?	Yes. Yes.	N/A	No	Yes. Yes.	No	No	N/A	N/A	Yes Yes	Labor only No
What are your average downtimes for maintenance and repair?	PM – 24 hours HY - vary	N/A	PM–6 hours HY-vary	PM – 24 hours HY-vary	PM – 24 hours HY-vary	N/A	N/A	N/A	PM – 24 hours HY-vary	N/A
What are your goals for improving maintenance and repair operations?	Decrease Service calls 10%, PM performed on time Maintain clean bus initiatives	N/A	Increase time between road calls	Increase intervals between service calls, Improve quality of work	Prioritize work, decrease backlog of repairs to < 2 weeks	Improve training, implement accountability measures and classification levels	N/A	N/A	Ongoing continuous improvement on a monthly basis in efficiency and effectiveness	Increase interval between service calls, decrease department costs
Is there anything unique to your city that we should be aware of, in comparing you to other cities?	Road quality, old facilities	N/A	Private company Mgmt-nonunion Emp-union	No	Road quality, old facilities	Rail is included in maintenance	N/A	N/A	No	High Altitude
What KPIs do you monitor?	Service calls, B- Inspections, Brake life, % bus - ADA lifts, Spares	N/A	Chargeable road calls, 10 year block of various data including performance	Road calls Miles between service interruption	Workorders, timeclock, fluids, fuel, costs, schedules	Ridership, Miles between service intervals, passenger complaints, vehicle miles	N/A	N/A	Cost/benefits of in house work, cost/mile, revenue/mile, time standards	Dirty bus complaints, inspections, down buses, dept. costs

**Detroit Department of Transportation
Performance Assessment
Survey of Peer Group Support Operations**

Inventory:										
<u>Questions</u>	Detroit	Chi	Milwaukee	Cleveland	Kansas City	Pittsburgh	Boston	Minneapolis	Philadelphia	Denver
Centralized (C) or decentralized (D)? Distribution environment (DE) or stand-alone (S)? Are non-storeroom employees prevented from accessing stock? How?	C DE Yes/no	N/A	C DE Yes, card access	C DE Yes, key access	N/A	C DE No	C DE Yes/no	C DE Yes, card access	C DE Yes/no	C DE Yes, card access
How many locations is inventory maintained? How many locations receive inventory directly from vendor?	11. 5.	N/A	5 5	7 3	N/A	9 4	10 2	10 1	3 3	10 8
Type of IT inventory system?	Lawson/Oracle	N/A	Custom	Custom	N/A	Peoplesoft	Dunn & Bradstreet	TX_Base W/ bar code scanning	American Software (ASAP)	Custom
Do you utilize just-in-time inventory delivery?	Re-order points (Min/max)	N/A	Re-order points (Min/max)	Re-order points (Min/max)	N/A	Re-order points (Min/max)	Re-order points (Min/max)	Re-order points (Min/max)	Re-order points (Min/max)	Re-order points (Min/max)
Parts disposal – are removed parts matched against parts installed?	No	N/A	Yes	No	N/A	No.	No	Yes.	Yes	No
Are parts cross-referenced to the different bus models to minimize inventory? How is this accomplished?	Yes	N/A	Yes	Yes	N/A	Yes.	Yes	Yes	Yes	Yes
How often are physical quantities reconciled to booked amounts (I.e. Cycle counts)? What are targeted and actual accuracy levels?	1/yr 80% 50%	N/A	10x/yr. 100% 99%	1/yr 100% N/A	N/A	1/yr 100% Garage-50%, Whse-85%	Don't do	Daily physical 98% 95%	4x/yr 100% N/A	4x/yr 97% 87%
Do you have a Quality Assurance Department that tests/reviews parts?	Yes	N/A	No. Outsource as needed	Yes	N/A	Yes.	No	No. Outsource fluid tests	Yes	Yes
Do you monitor any specific KPIs?	Inv T/O Inv. Costs Backorders 3 month usage Slow moving items	N/A	Fill rates Inv T/O Various others as they operate like a business	N/A	N/A	Inv T/O, inv values, fill rates, back orders, dead stock	Inv T/O, Delivery	Stock outs vs. service level, down buses, daily purchases	Inv T/O, deadstock, down vehicles, slow moving items, MRR utilization (compare requisitions against productivity)	Inv T/O, Inv value, stockout rate, reorder points, line items, slow moving

**Detroit Department of Transportation
Performance Assessment
Survey of Peer Group Support Operations**

Purchasing:										
Questions	Detroit	Chicago	Milwaukee	Cleveland	KC	Pitts	Boston	Minneapolis	Philadelphia	Denver
Who writes specifications for RFPs/Contracts? QA – Quality Assurance PM – Plant Maintenance MM – Materials Management WHSE - Warehouse	QA – bus & parts PM – PM MM-other	WHSE or QA	Maint-Maint All-MM with input from users	Parts-MM Capital-Outsource Services-Users	N/A	N/A	Engineering or outsource	Users	Engineering group or users	Users
Are Buy America requirements applied to all contracts/RFPs?	Yes, fed funds > \$100k	Yes, fed funds > \$100k	Yes, fed funds > \$100k	Yes, fed funds > \$100k	N/A	N/A	Yes, fed funds > \$100k	Yes, fed funds > \$100k	Yes, fed funds > \$100k	Yes, fed funds > \$100k
Are P-Cards used? If so, what type of items are acquired on P-Card?	No	No	Yes. Emergency <\$500/day	Yes. Small \$ items, Office supplies,	N/A	N/A	No	No	Yes, emergency repairs	Yes Parts & services
Do you use non-OEM parts? If so, are they tested for compliance with specifications?	Yes. Yes.	No	Yes. No.	Yes. Yes.	N/A	N/A	Yes. Yes.	Yes No	Yes Yes	Yes
What % of purchases on contract vs. adhoc?	90%	98%	60-70%	80%	N/A	N/A	40%	50%	50-75%	75%
Is petty cash used for purchases?	Yes	Yes, <\$20	Yes.	No	N/A	N/A	No	Yes, <\$50	No	Yes
Describe the A/P approval process.	2/3 way match	2/3 way match	2/3 way match, pay within 30 days	2/3 way match	N/A	N/A	2/3 way match	2/3 way match	2/3 way match, automated except for services, pay within 30 days	2/3 way match, automated except for services, pay within 30 days
How long does it take from creation of purchase requisition to the receipt of goods?	Contract item – 15 days Non – >15 days	<100k 6 weeks >100k 2-3 months	3 days	Operating item – 7 days RFP-6 months	N/A	N/A	<\$25k-1 day, >\$25k 30 days, >\$250k 90 days	3 days	<\$25k 7.5 days, >\$25k 4 months (bid process)	7-10 days
Is the purchasing performed within transportation authority or as part of overall city purchasing?	Both	Independent	Independent	Both	N/A	N/A	Independent	Independent	Independent	Independent
Do you monitor any specific KPIs?	Delivery time Quality Backorders	Delivery time Quality Backorders	No	PO T/A time, Savings from budget, Vendor turnaround time for delivery, claims and change orders	N/A	N/A	No	No	DBEs, Buyer thrupt levels, delivery time, quality	Vendor performance rating

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	Purchases are processed on 2 different systems (Oracle and Lawson). This situation leads to double entry issues and additional errors are possible due to different information needed for each. In addition, there are problems with data integrity between the two systems at a given point in time due to one system being current while the other may not be.	Create an interface so that duplicate effort is not required to process a purchase order or request. The interface would populate both systems simultaneously to ensure that information is accurate in both systems at the same time.	Decrease time required to create purchasing documentation. Prevent input errors and ensure database integrity at any point in time. Edit checks in the interface can also ensure the data is input identically into both with standard templates. Interface would also prevent transactions from being processed (I.e. Physically receiving inventory, but prevented from updating system due to purchasing process not completed).	3.3.7
H	Processing time for the requisition and purchasing process is very time consuming compared to other transportation agencies.	Perform independent assessment of department functionality to determine if they are operating in the most efficient manner. In addition identify metrics and monitor to identify root causes for overages.	Decrease time it takes to process purchases and ultimately time it takes to receive and pay for goods.	3.3.4
H	Purchasing Department does not have very many proficient users of the Lawson and/or Oracle system.	Assess current resources and determine if there is a need to hire more proficient individuals or if existing resources would benefit from additional training. Identify power users who provide leadership for using the system and serve as knowledge master for the system functions.	Operational efficiency improvements. Would also improve quality/accuracy and minimize re-work, minimizes open orders if waiting for instructions.	3.3.7
H	Purchasing Department resources appear to possess an inconsistent level of “purchasing” skills to perform their responsibilities in a manner that optimizes accuracy and efficiency. Purchasing Manager must provide additional training beyond the norm and her time would be better spent on tasks more strategic to the group.	Assess current resources and determine if there is a need to hire more proficient individuals or if existing resources would benefit from additional training. Identify power users who provide leadership for using the system and serve as knowledge master for the system functions.	Operational efficiency improvements. (Same as above) Also, the purchasing manager may be neglecting more important functions as a result, i.e. economic costs	3.3.4

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	The D-DOT Purchasing Department operates in a very complex environment in which there are many layers of involvement. In addition, it appears that more purchases are being processed under the Federal guidelines than are legally required.	Perform independent assessment of department functionality to determine if they are operating in the most efficient manner. It may be a benefit for the department to operate independently of the City of Detroit's Purchasing Department. Specifically, identify optimal processing/approval methodology for the department.	Decrease time it takes to process purchases and ultimately time it takes to receive and pay for goods (I.e. minimize the per transaction cost for purchases while maintaining sufficient levels of quality/accuracy). Processing of purchases in a timelier manner would result in shorter lead times from initial requisition to receipt of goods.	3.3.4
H	In current setup, the Purchasing Department does not have the tools to monitor the operational aspects of the department.	Create standard performance metrics and departmental costs and monitor them on a monthly basis for variances. Determine minimal benchmarks for performance and identify methods for rewarding good performance.	Good business practice. Potential improvements in costs and accuracy can be gained if they can be quantified.	3.3.4
H	Knowledge of the reporting capabilities of Lawson/Oracle is either limited or the system is not capable of providing meaningful data in it's current configuration. In addition, it may be using inefficient methods to generate reports.	Determine what reporting data is necessary for the department to operate in a more effective manner.	Good business practice. Potential improvements in costs and accuracy can be gained if they can be quantified	3.3.7
H	There is a process in place to identify goods/services that need to be expedited. Purchasing Department finds out on a daily basis what items the Maintenance Department is waiting on (Priority Parts List). Alternative procedures in place to either change purchase order amount so that it does not have to go thru formalized process or pay cash for goods out of the petty cash or working fund.	Implement some of the recommendations mentioned above and this problem may disappear as a result.	Good business practice.	3.3.4
H	Monthly cycle counts that are performed have averaged a 50% accuracy level for the past 2 years.	Perform an independent review to determine the root cause of this problem.	Improving this figure could mean a substantially less write-off incurred during the year (approximately \$500,000 per year)	3.3.6

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	Inventory management is processed on both the Lawson and Oracle systems which leads to input issues.	Create an interface between the two systems allowing for single entry.	Improvements in efficiency and effectiveness by spending less time maintaining 2 systems and a reduction in input errors. May also improve employee morale.	3.3.7
H	It appears that inventory management personnel would benefit from additional training on inventory management and operating Lawson and Oracle systems.	Provide additional relevant training that would increase proficiency or hire additional staff with appropriate skill sets.	Improve accuracy, efficiency and effectiveness of inventory management.	3.3.7
H	It appears that inventory levels are not monitored on a consistent basis resulting in inventory being ordered after or before re-order points have been hit.	Establish and enforce standard procedures requiring the min/max levels to be monitored on a daily basis. In addition, re-order points should be reviewed periodically to determine if they are still correct	Improve the accuracy of the inventories and the timeliness of the purchases. Inventory more readily available and idle coaches spend less time waiting on inventory.	3.3.6
H	Cross referencing of parts between the OEM number, supplier number, and internal D-DOT needs to be improved upon within the systems and personnel.	Perform an independent review to determine the root cause of this problem and assess whether the procedures in place is a best practice. Obtain "Parts Lists" from bus manufacturers and reconcile/update inventory listings.	Improve the accuracy of the inventories and the timeliness of the purchases Prevent inventory shortages.	3.3.6
H	Inventory Management personnel report to the Purchasing Department.	Inventory Management personnel should report to appropriate operations department they are servicing.	Improve segregation of duties and put responsibility of performance in a more appropriate area.	3.3.1

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	Absenteeism for year-end 2001 thru March for drivers averaged 21% and for mechanics 17.5% respectively.	Is it possible to input some kind attendance related criteria in the union contracts (I.e. Attendance or productivity bonuses by department)? Investigate reasons for absenteeism to determine if there is a root cause.	Increase in attendance would lower amount of overtime costs incurred. Overtime costs for Transportation Operations was \$7.9 million and for Vehicle Maintenance was \$5.3 million as of March 31, 2001. Overall Departmental overtime totaled \$15.6 million as of March 31, 2001.	3.3.9
H	It appears that there are system integrity issues as it is quite common for various systems to be down for extended periods of time.	An independent assessment should be performed to analyze the integrity of the current IT infrastructure and support.	Improve productivity and improve employee morale.	3.3.7
H	The Corradino Group has conducted a ridership survey in 1999, but has there been any follow-up work performed as a result of this survey.	The Operations Department should evaluate the results of this survey and determine if any routing and scheduling changes need to be made.	Increase passenger loads and optimal utilization of coaches.	3.3.3
H	It does not appear that any kind of operational or financial analysis on D-DOT performance is performed on a monthly basis.	Implement a process of providing department managers with their monthly budget/costs and have them monitor results. Identify areas where costs could be reduced or additional resources need to be provided.	Improvements made to productivity and operations by performing monthly analysis of results and hold department managers accountable for their results.	3.3.10
H	80% of drivers hired will not make it past one year on the job for a variety of reasons. In addition, it does not appear that D-DOT does a good job of monitoring the driving records of drivers it currently employs.	Analyze hiring and compensation practices for drivers and see if improvements can be made. Driving records should be monitored on an annual basis.	Reduces employee turnover. Reduce the likelihood D-DOT placing a driver on the road with a bad driving record or no driver license.	3.3.9

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	It appears that only a handful of end users know the full functionality of the Lawson system as it relates to work orders, costing data, labor time involved, vehicle history, etc.	Assess current resources and determine if there is a need to hire more proficient individuals or if existing resources would benefit from additional training. Identify power users who provide leadership for using the system and serve as knowledge master for the system functions. Implement a Lawson (Vehicle Maintenance) training program.	Operational efficiency improvements. Would also improve quality/accuracy and minimize re-work, minimizes open work if waiting for instructions.	3.3.7
H	Trolleys purchased without an inside area to work on them and a convenient way to refuel them.	A cost benefit analysis should be performed on installing an inside lift, and a refueling high speed refueling dock.	Improve the revenue and service generating potential of the trolleys.	3.3.5
H	The processing of work-orders, receiving of needed parts, and repairing the broken coach is an inefficient operation. Too often a coach is brought into a bay to work on, a work-order is written up, and needed parts are not available leaving the coach to occupy the bay until the part is received.	An independent review should be performed to see if work-orders, and inventory management processes could operate in a more efficient and effective environment. Could material needed be identified (reserved) prior to bringing a coach in to occupy a bay? In addition, could some kind of scheduling of and monitoring of work be interfaced within the same system?	Improve time required to fix buses and better use of resources (bays and mechanics). Also allow for the scheduling and monitoring of work.	3.3.5

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
H	It appears that the standard time it takes to perform routine mechanical work for brakes, transmissions, engines, suspension has not been reviewed in many years. In addition, no monitoring of the time employee spends on these types of jobs is monitored.	Evaluate the standard times to verify that they are still accurate and starts monitoring the amount of time mechanics take to perform these procedures.	Improve the efficiency of the time required to repair coaches. Accountability of individual or group performance.	3.3.5
M	No existence of upfront vendor screening process other than checking of references. Vendor screening is currently performed on the backend via quality and delivery characteristics.	Implement a formalized vendor screening process addressing the vendors' capabilities to provide services.	Prevents long term unforeseen costs that can crop up on the backend such as the ability to deliver a quality product in a timely manner.	3.3.4
M	Inventory is received but cannot be recorded in the system due no existence of a PO in Lawson and/or Oracle, or the PO has not been approved yet within either system.	Create an interface between the two systems allowing for single entry.	Improvements in efficiency and effectiveness by spending less time maintaining 2 systems and a reduction in input errors.	3.3.7
M	The appropriate storage location of inventory is either not always utilized or the location is classified incorrectly in the system resulting in over/under statements of inventory levels. In addition, the utilization of allocated space could be improved upon.	Perform an independent review to determine the root cause of this problem. Analyze whether inventory is stored in the most optimal and safe manner.	Improve the accuracy of the inventories and the timeliness of the purchases.	3.3.6
M	It appears that IT hardware in some areas is old and unreliable. Printers are located in locations not convenient to users.	An independent analysis should be performed on the maintenance and inventory management areas to determine if additional IT resources are warranted.	Improve productivity and improve employee morale.	3.3.7
M	Quality Assurance's budget falls under the Vehicle Maintenance Department, yet they report directly to D-DOT Director.	The D-DOT Director should control quality Assurance's budget, as there would appear to be a segregation of duties problem here.	To improve the results of the Quality Assurance group and potentially realize the need to increase resources in this area. Improve the overall independence, objectivity, and ultimately the results obtained from this group.	3.3.1
M	In addition, to above limited information is monitored.	Analyze capabilities of Lawson and determine what information should be monitored, and how often, and put procedures in place to monitor.	Improve operational awareness of productivity and the costs associated with obtaining results.	3.3.8

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
M	Mechanics work force could be comprised of individuals with skill sets more suited for mechanical work.	In addition, to passing the civil services exam, mechanics should possess some mechanical competency. Identify those mechanics that require additional training and provide them with it. Test them on the training to ensure that they have learned something.	Improve effectiveness of department. Maximize the potential of the department.	3.3.5
M	Initial work-orders are not always completed when a coach is brought in for service. It is our understanding that this occurs due to required parts not being in inventory. However, the bus is put back into service only if the repairs needed do not have any safety issues associated with them. This means that the bus will return for service as the parts are received.	An independent review should be performed to see if work-orders, and inventory management processes could operate in a more efficient and effective environment. In addition, could some kind of scheduling of and monitoring of work be interfaced within the same system?	Improve time required to fix buses and better use of resources (bays and mechanics). Also allow for the scheduling and monitoring of work.	3.3.5
M	Repairs are not analyzed for trends to determine if a particular part or vendor supplying the part is faulty.	A process should be implemented to facilitate the monitoring of this type of information.	Long-term quality improvements. Improve vendor productivity as well.	3.3.5
M	Maintenance employees feel that their facilities are old and antiquated.	An independent review should be performed to assess this opinion. If review agrees with Maintenance employees' opinions, a cost benefit analysis should be performed.	Improve productivity and provide a safer, cleaner environment to operate in. Improve employee morale.	3.3.5
M	The only standards for monitoring vendors are delivery time and quality. Very difficult to disqualify a vendor.	Implement a vendor rating system based on various predetermined quantitative/qualitative benchmarks (I.e. On time delivery, documentation correct, quantity correct, quality correct, correct price) for the vendor and perform periodic reviews of vendors of these metrics. Prioritize vendors based on dollars spent and prior problems with vendor (errors or delays)	Increase leverage in negotiations for more favorable pricing, quality of goods, and timeliness of delivery.	3.3.4

Detroit Department of Transportation

KPMG Observations During Performance Assessment

Priority	Observation	Recommendation	Potential Benefits	Section Reference
M	Because of the time it takes to receive payment from D-DOT, some vendors refuse to invoice D-DOT but rather require cash or credit card payment upfront for purchases.	Perform independent assessment of department functionality to determine if they are operating in the most efficient manner. Specifically, identify optimal processing/approval methodology for the department.	Decrease time it takes to process purchases and ultimately time it takes to receive and pay for goods (I.e. minimize the per transaction cost for purchases while maintaining sufficient levels of quality/accuracy). Processing of purchases in a timelier manner would result in shorter lead times from initial requisition to receipt of goods.	3.3.4